INFRASTRUCTURE PROJECT FINANCE IN ASIA

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ABSTRACT

The explosion of the "Asian economic miracle" and the explosion in infrastructure demands that followed caused financiers to rush into the area to take advantage of the increasing demands for project finance. However, many were scorched in the very heat of their enthusiasm. Expecting the same set of straightforward project financing principles and structures to apply in Asia as in the west, these early participants failed to address those particularly Asian issues crucial to the ultimate success or failure of the projects such as a lack of a well-defined legal and regulatory framework and the introduction of individual political and country risks.

In short, true project financing cannot be said to exist in Asia since the ambiguities associated with the responsibilities and credit worthiness of the different players in the project framework do not lend themselves well to the traditional practice of allocating project risks amongst the various parties. As a result, in addition to the promises of future cash flows, project debt financing must be further secured on other promises such as sovereign guarantees or corporate guarantees.

However, as these guarantees have become much more difficult to attain in recent years, financiers must experiment with new contingencies. For some, such as in the case of New World, the developer has resorted to what is essentially, a suboptimal

financing structure composed of a major proportion of project equity financing, while for others, such as Huaneng Power International, the developer has turned to increasingly more sophisticated and innovative structures to take into consideration every aspect of project risk. Through our study of these two cases, we discover one important lesson, project success is not dependent on the level of sophistication in a project structure while project failure is not the result of an individually suboptimal structure. Rather, to be successful in Asia, a project financing structure must essentially be a marriage between the investors'/sponsors' needs, resources, and purposes with the constraints and demands of the Asian operating environment.

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CHAPTER I

INTRODUCTION

The explosion of the "Asian economic miracle" which has overstrained and overwrought the existing infrastructures in the region, has translated to an explosive demand for infrastructure projects. This phenomenon in turn, has translated to an explosive demand for project financing as such unprecedented levels of financing needs could not be met by the traditional sources of public sector financing. In response to this opportunity, a number of US and foreign banks rushed into the territory. However, this burst of enthusiasm soon cooled; unable to derive any economic benefits despite immense efforts, such an influx was soon followed by a mass exodus.

What went wrong? These participants came to Asia expecting to apply the same set of straightforward project financing principles and structures which had so well served the west. However, Asia is not the west. All those assumptions of a well-defined legal and regulatory framework to address such issues such as tax, import controls, conversion and repatriation of profits and commercially based tariffs which permit a reasonable return on investment, are ambiguous and often altogether

nonexistent in the developing economies of Asia. Moreover, new issues such as country and political risks enter into to confound and muddle the project financing picture. Therefore, it is very difficult to convince lenders to lend to a project on a pure non-recourse basis in this region.

In short, in Asia, true project financing does not exist. For this reason, we cannot expect to obtain the same levels of leveraged investments found in equivalent projects in the west, and moreover, cannot judge the relative success or failure of a project financing in the same light. Finally, even if a project is able to adopt a basically superior structure on paper; the results may even prove devastating when the time arises to test the enforceability of the detailed contracts.

To explore this idea, in this study, we will present two cases: New World Development Company Ltd. and Huaneng Power International, Inc. In the first case, New World adopts a project financing structure, (one with a high level of project equity financing rather than project debt financing) which when compared to structures in the west, seems unusually suboptimal. In the second case, Huaneng Power International, the company adopts a unique and superior financing structure, one with the characteristic of being "interactive", that is, the level of debt financing would actually positively affect rather than impair future equity financing as the debt-to-equity ratio swells. What we discover from these two studies is that in Asian project financing, the consequences can be profoundly different from the results in the west. Structures seen as suboptimal in the west may prove successful in Asia, while structures seen as superior may prove to be self-defeating.

CHAPTER II

NEW WORLD DEVELOPMENT CO. LTD.

Introduction

Thesis

In traditional project finance in the west, due to the high costs of external funds and thus, the relatively high levels of project debt financing (on average 65-85% of the total project cost), ROE, rather than ROI is the proper measure of return on a given project. Because oftentimes, project borrowing costs would exceed the return on investment (e.g. borrowing costs = 15%, while ROI = 12%), the only way for investors to make profits would be for them to greatly leverage their investments to boost up ROE. Therefore, to be successful, projects must be financed with a very high level of project debt financing; if financed primarily by equity, projects would either, in the less serious case, cause corporate funds to be used suboptimally, or in the serious case, cause investors to actually lose money, in which case, the projects would not even proceed. Finally, a high level of project equity financing would entail greater

risks for investors since they would have more to lose in the situation of project non-profitability or in the more severe case of project default.

In our following discussion of New World Development Ltd., we discover an anomaly to the simple relationship of high project debt financing equals to project success and profitability. New World finances its individual projects almost purely with equity funds. Moreover, as if this seemingly suboptimal use of corporate funds were not enough, it seems to unnecessarily sacrifice its upward profit potentials through an obsessive concern over protecting its corporate equity investments. However, through this case, we discover that in fact, the traditional project finance concept of high leverage and returns based on ROE does not directly apply here because in doing business in China, project success means achieving an acceptable rate of return on investment and getting the principle investment back as soon as possible, even at the expense of sacrificing all upward profit potentials. Moreover, the optimal levels of project debt vs. project equity financing cannot be simply determined on ROE alone; a proper financing structure depends on matching investors'/sponsors' needs, resources, and purposes with the constraints/demands of the operating environment.

Company Background

New World Development Ltd., one of the top 15 companies listed on the Stock Exchange of Hong Kong in terms of market capitalization, with a capitalization of HK$43 million (US$6 billion) as of August 31, 1995[1], is in the business of property investment and development, hotel investment and management, transport and infrastructure, telecommunications, and a host of other businesses ranging from department stores, property mortgages, finance and insurance services, television broadcasting, convention centre management, membership club operations, commerce trading, manufacturing, etc. Infrastructure projects are held under subsidiary, New World Infrastructure Ltd. The following is the operational structure of the conglomorate.

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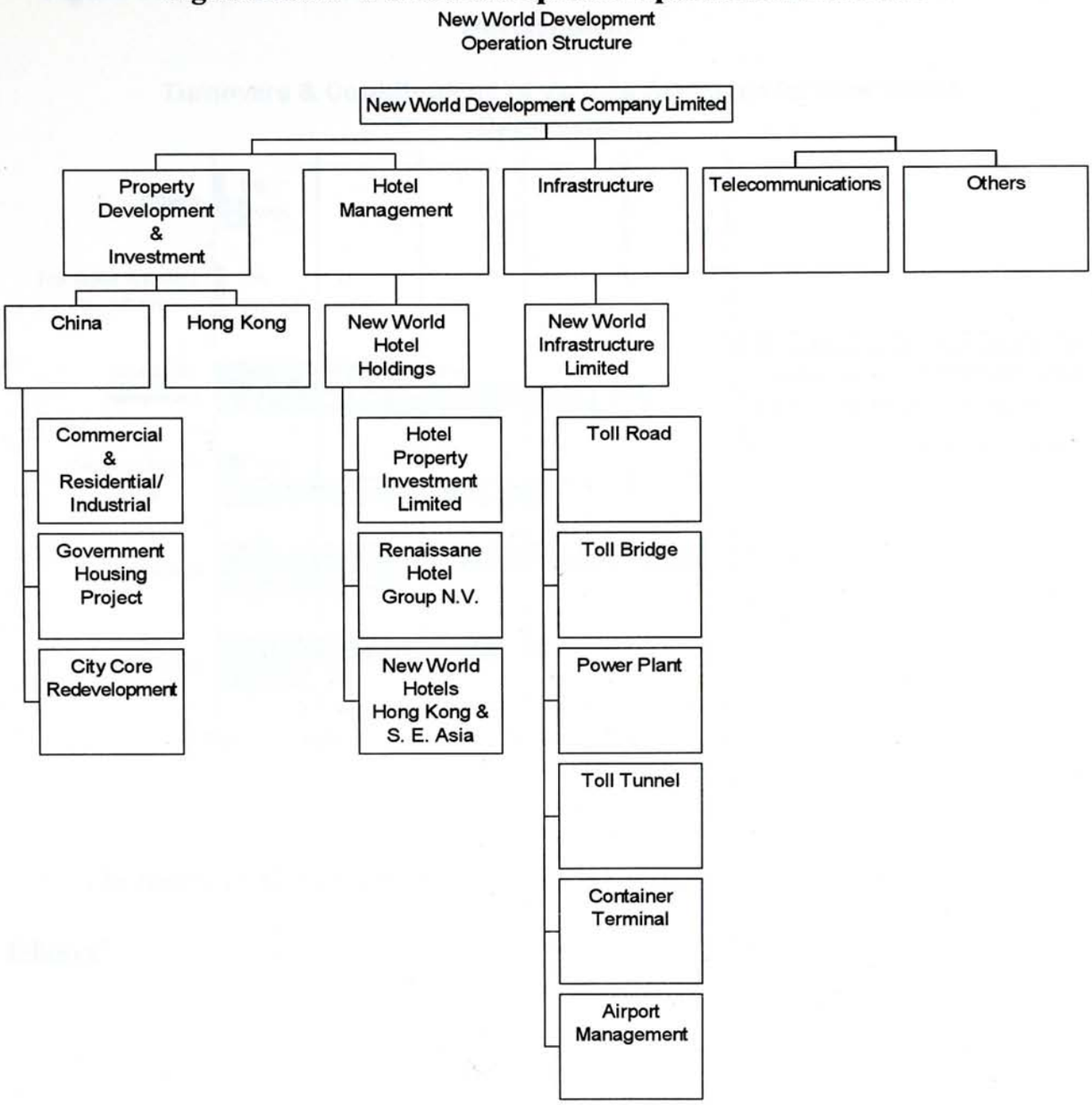
[1] Credit Lyonnais Securities (Asia) Limited. New World Infrastructure Limited Placing and New Issue, October 17, 1995, pp. 108.

Figure 1 New World Development Operational Structure



As of the year ended June 30, 1995, the Group's performance by Principal Activities take the following characteristics[2]:

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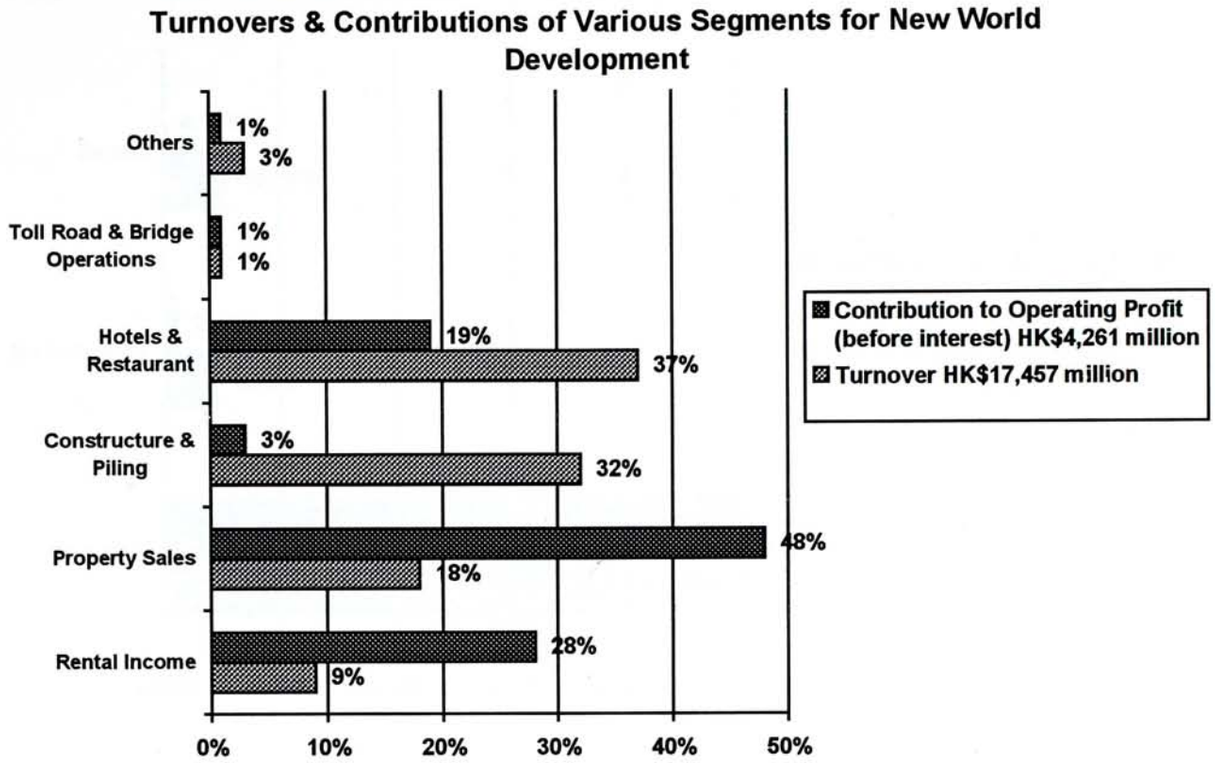
[2] New World Development Co. Ltd. Annual Report 1995, pp. 13.

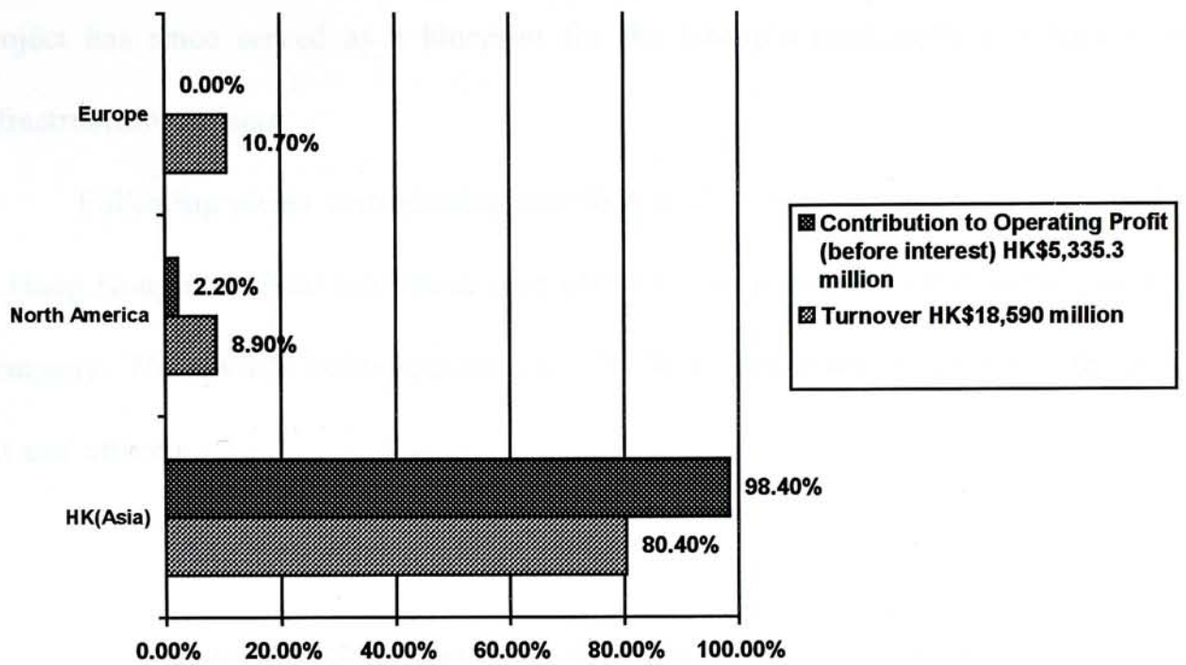
Figure 2. Turnovers & Contributions of Various Segments for New World Development



In terms of Geographic Breakdown as of June 30, 1995, the figures are as follows[3]:

[3] New World Development Annual Report 1995, pp. 46.

Figure 3.Turnover & Contributions of New World Development by Region



Entrance into the Power/Infrastructure Business

Started out as a property developer, New World has, over time, strategically expanded its core business operations to include hotels, and finally, infrastructure. The expansion into infrastructure was almost unconscious; it was the result of the New World Group's diversification into China in the early 1980's. Through taking part in the development, construction, and management of the China Hotel in Guangzhou, New World established business relationships with the various provincial and municipal government authorities which paved the way for the Group's entrance into the infrastructure business. Thus, when the Guangzhou City People's Government approached and invited the developer to participate in the construction of the 22 km dual three-lane Guangzhou City Northern Ring Road toll expressway in Guangzhou, a

joint venture contract signed in 1990 to handle the project marked the starting point for New World's diversification into infrastructure development. The structure of this project has since served as a blueprint for the Group's participation in later road infrastructure projects.

Following recent restructuring activities in 1995, the infrastructure investments in Hong Kong and China have been spun off into a separately held and publicly-traded company: New World Infrastructure Ltd. (NWIL). Below are the details of the spin-off and offering.

The Spin-off of New World Infrastructure Ltd. (NWIL)

The spin-off of New World Development's infrastructure subsidiary, New World Infrastructure began with the authorization of 2,000,000,000 shares for issue and the injection of infrastructure assets with an appraised value of HK$7.865 billion[4] (see Appendix 1 for the actual projects). Three parties provided these assets: New World Development Company Limited, New World China Investment Limited (a 50% owned associated company of New World), and Feng Ming Investment Limited, and in return for their injections, were awarded shares in the new company accordingly. Below is a diagram illustrating these transactions.

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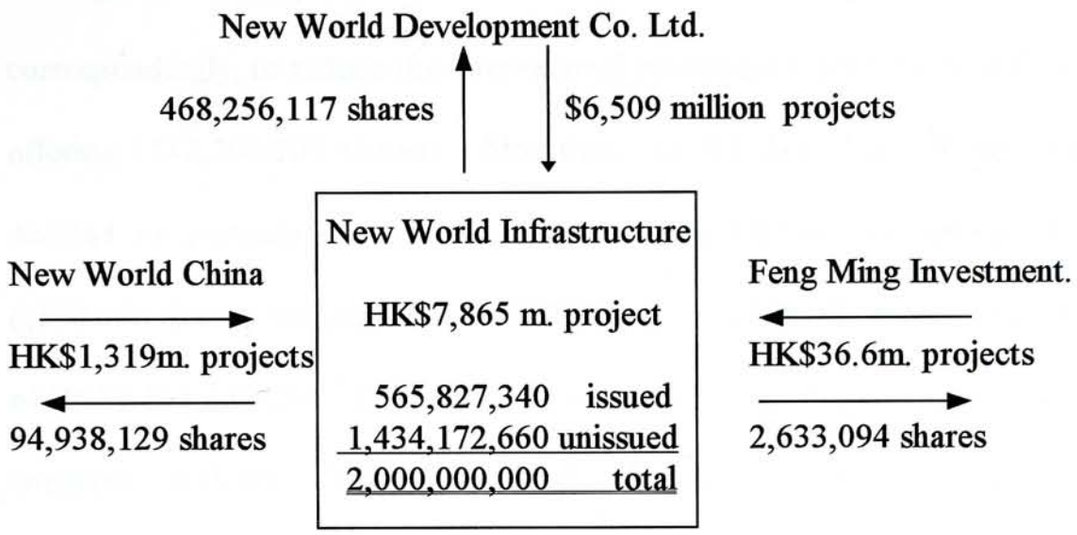
[4] Credit Lyonnais Securities (Asia) Limited. New World Infrastructure Limited Placing and New Issue, October 17, 1995, pp. 60.

Figure 4. The Formation of New World Infrastructure Ltd.



New World Development then made plans for an Offering of shares whereby the total number of shares issued would increase to 727,827,340, divided into the following:

Figure 5 NWIL IPO (a)

565,827,340	Shares in issue and to be issued pursuant to the Reorganization:
468,256,117	New World Development Company Limited
94,938,129	New World China Investment Limited
2,633,094	Feng Ming Investment Limited
162,000,000	**Shares to be issued pursuant to the Share Offer**
16,200,000	**Initial Public Offering in Hong Kong (10% of the Offering)**
145,800,000	**International Placing (90% of the Offering)**
727,827,340	Total Shares Outstanding After the Offering

An over-allotment option ("Green Shoe" Option) of up to 24,300,000 additional shares was made available to cover over-allotments in the placing and/or over-subscriptions in the new issue.

The final initial public offering issue price was fixed at HK$12.75 per share, representing a price/earnings ratio of 27 times projected 1991 earnings. Due to the

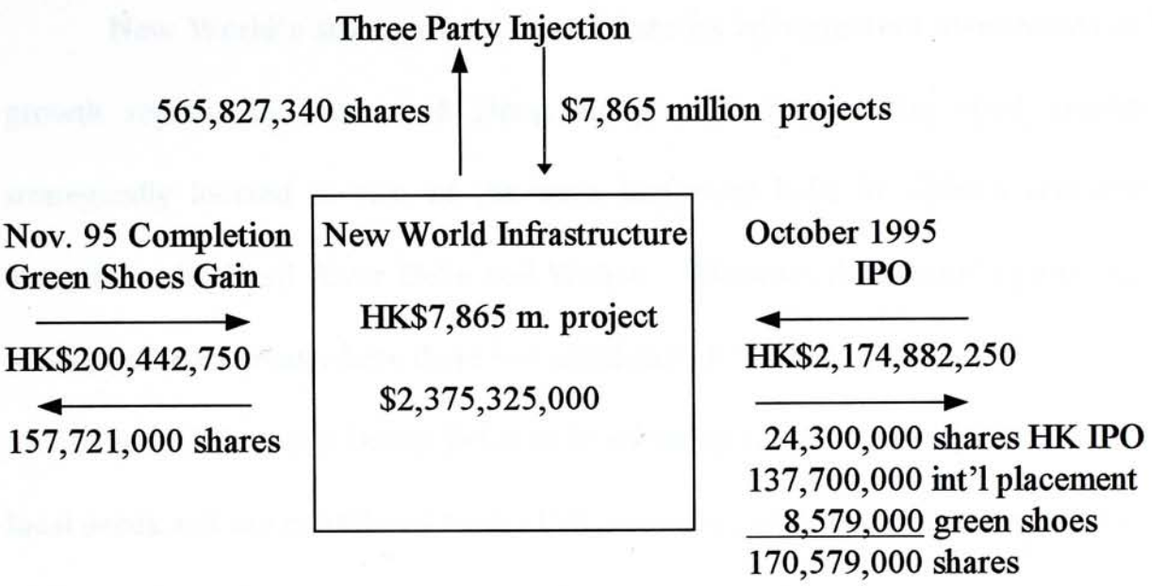
good response by Hong Kong investors (an oversubscription of some 19.6 times), New World decided to increase the number of shares set aside for the Hong Kong initial public offering from 10% to 15% of the share offering (24,300,000 shares), and correspondingly, to reduce the international placement from 90% to 85% of the share offering (137,700,000 shares). Moreover, on the day of the listing, the company decided to partially exercise the "Green Shoe Option" by issuing an additional 8,579,000 shares, bringing the total offering to 170,579,000 shares and raising a total of HK$2,174,882,250, HK$2.058 billion of which comprised net proceeds for the new company. With this offering, New World Development was left with a share of 67.9% of the issued share capital of NWIL. Credit Lyonnais then decided to exercise the "Green Shoe" over-allotment option of 24,300,000 shares in full by issuing another 15,721,000 shares in November, bringing the total authorized and outstanding shares to 752,127,340 shares. Below illustrates the breakdown:

Figure 6. NWIL IPO (b)

2,000,000.000	Total Authorized Shares
1,247,872,660	Authorized Shares Unissued
565,827,340	Shares in issue and issued pursuant to the Reorganization
162,000,000	Shares issued pursuant to the Share Offer
24,300,000	Shares issued for IPO in Hong Kong
137,700,000	Shares issued for International Placing
24,300,000	Shares issued with exercise of the "Green Shoe" over-allotment option (with 8,579,000 issued at the time of the listing, of which 4.9 million shares were placed, and another 15,721,000 shares issued in Nov.)
752,127,340	Total Shares Outstanding After the Offering

Below is a diagram illustrating the various transactions:

Figure 7. Formation of NWIL (b)



With the completion of the "Spin-off", New World Development Company Limited held a total of 468,256,117 of the subsidiary's shares directly, and another 47,469,064.5 shares indirectly through its 50% stake in New World China Investment Limited, giving the Group control of 68.57% of the new concern.

As a result of the spin-off, today, NWIL holds a well-structured portfolio of infrastructure development and investments all within the boundaries of Hong Kong and China spanning the development, operations, and management of toll roads, tunnels and bridges, electric power stations, container terminals, cargo handling and distribution facilities complexes, and airports. Details of this portfolio are in Appendix 2.

The Group's Strategy On Its Infrastructure Investments

New World's strategy is to concentrate its infrastructure investments in high-growth regions in China and Hong Kong. All the existing road projects are strategically located in two of the most important hubs in China's transportation networks: the Pearl River Delta and Wuhan. Likewise, the Group's power projects serve populated areas where there is a significant demand for power.

In addition, the Group believes in investing only in projects which meet basic local needs and are considered by the PRC Governments as priority projects. By doing so, they believe that demand would be less adversely affected by economic downturns, approval and regulatory processes can be expediated, possibility of delays in completion reduced, and investment incentives such as favourable tax treatment, the possibility of extending the joint venture term if a certain rate of return is not achieved, and the transfer of any currency devaluation risks to the joint ventures may be obtained. Moreover, by entering into partnerships with local PRC entities to invest in these projects, the Group is better able to meet these objectives.

And finally, the Group believes in focusing on projects where it would be able to capitalize on the capabilities and experience of the Group. Concentrating its resources in Guangdong and Wuhan and engaging the services of its subsidiary, Hip Hing which would allow the New World to obtain construction work and engineering consultancy services for its infrastructure projects at an arm's length basis, are examples of how the Group aims to achieve management synergy and complementary relationships in respect to its infrastructure investments.

Major Dates / Events

Here follows the major events in New World's diversification into the Asian infrastructure industry since the holding company's incorporation in 1970:

1970 Incorporates in May engaging in real estate development and property investment

1972 Becomes listed in November by offering 96.74 million shares to the public

Diversifies into construction and civil engineering works, hotel and theatre operations and travel agencies

1980 Participation in the building of the China Hotel in Guangzhou

1981 Joint ventures with a number of parties to create Asia Terminals Limited (ATL)

1985 Acquires a 49% interest in Asia Terminals Ltd. which owns and operates Berth 3 of Kwai Chung Container Terminal

1988 Acquires a 24% interest in a 30-year franchise to operate the Tate's Cairn Tunnel between Shatin and Kowloon which became operational in July 1991

Begins to involve in a number of infrastructure construction, power plants, highway projects and huge land development undertakings, in various regions in China

1990 Joint-ventures with the Chinese authorities to construct the Guangzhou City Northern Ring Road which became operational in Jan. 1994

1991 Through Ready City Ltd., acquires a 13.84% indirect interest in Sea-Land Orient Terminals Ltd.

Takes a 50% equity stake in HRBD to obtain a 34.05% indirect interest in the Shenzhen-Huizhou Expressway project, which became operational June 1993

1992 Undertakes some interest in the development of the Kwai Chung Container Terminal No. 9 project

Enters into a Sino-foreign joint venture with GDGC for the construction of Zhujiang Power Station - Phase I, which became operational January 1994

1993 NW China Inv. Ltd., a 50% owned associate engaged in China investments, obtains a listing on the Irish Stock Exchange

Sino-cooperative JV with a number of PRC parties for the construction of Guangzhou-Zhuhai East-line Expressway

Sino-cooperative JV with PRC parties for the construction of Roadway No. 324 (Gaoyao Section), which became operational February 1994

Joint-ventures with Wuhan Airport Comprehensive Development Corporation (WACD) to construct the Wuhan Airport Expressway, which became operational April 1995

1994 Forms two Sino-foreign cooperative joint ventures for the building of Roadway No. 321 (Fengkai Section), which became operational March 1995, and Roadway No. 1964 (Zhaojiang Section), which became operational December 1995.

Subscribes for shares in WBC to obtain an interest in the Wuhan Bridge Project

1995 Joint-ventures with PRC parties for the construction of Roadway No. 321 (Deqing Section), which became operational December 1995

Joint-ventures with PRC parties for the building of Roadway No. 1960 (Guangning Section) in Zhaoqing (Guangdong)

Supplemental agreement for the building of provisional project, Zhujiang Power Station - Phase II

New World Infrastructure Ltd. becomes a separately listed company on October 27, 1995, offering 170,579,000 shares, issued at HK$12.75/share by way of a placing and a public offer, raising a total of HK$2.17 Billion

Analysis

New World's Project-Financing Structure

New World's projects are heavily financed by equity funding, with little use of external project debt funding. Also, in many cases, the PRC partner's equity contribution is simply the piece of land or a previously finished section of the project; therefore, if we only take the actual cash expenditures to mean total cost by subtracting from the project cost the land contributions of the PRC partner, we may get slightly even more skewed financing ratios, particularly concerning the portion equity funded by New World. For details of the financing ratios of the individual projects, please see Appendices 3 and 4. For a clearer picture of New World's financing structure, below is a chart showing how New World's consolidated financing portfolio of its PRC projects looks like[5]. We have shown both sets of ratios (based on Total Cost of the Project and based on Total Cash Expenditures Required in the Project) where applicable below:

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[5] This consolidated financing portfolio includes all the PRC projects except for the Shenzhen-Huizhou Expressway where data is not available.

Figure 7 NWIL's Project Finance Ratios

	Total Cost of Projects		Total Cash Required in Projects	
	Amounts in RMB	% of Total Cost	Amounts in RMB	% of Total Cost
Total Financing Required	12,367,067,000	100.000%	11,062,567,000	100.000%
External Project Debt Financing	2,404,709,394	19.444%	2,404,709,394	21.738%
Project Equity Financing	9,936,857,606	80.349%	8,632,257,606	78.032%
Other Project Financing	25,500,000	0.002%	25,500,000	0.002%
Equity Financing Provided by New World Development	3,852,187,456	31.149%	3,852,187,456	34.822%

Through this analysis, we can see that New World's project financing structure, 19.444% Debt, 80.349% Equity in the case of total project cost, and 21.738% Debt, 78.032% Equity in the case of total cash requirements required, for its PRC projects are widely different from the profiles we find in projects in the west where projects will be generally financed with 65% to 85% external debt. The implications of this deviation are serious. It means that New World's return-on-equity (ROE) ratios may be considerably lower than usual, indicating a likely suboptimal use of funds. The consequences of New World's lowered ROE due to high project equity financing are crucial, since in project finance, the key measure of investment returns is ROE, rather than return-on-investment (ROI). This is because in projects, oftentimes, the sponsor's costs of borrowing could be greater than a project's return-on-investment. For project investors, profits are gained because of the high leverage associated with

their investment. However, in the case of New World, it is obvious this is not the case. Moreover, strangely enough, we also find that New World places caps on its projects' upward revenue/profit potentials; in the case of the Zhujiang Power Plant, all additional revenue/profits above the guaranteed minimum go to the local partner, while the company only receives the minimum contracted power purchase amount.

In the face of all these unusual arrangements, the question arises as to why New World would choose to so "suboptimally" use its corporate funds by undertaking such a "suboptimal" combination of debt vs. equity funding in its individual projects and limiting its upward profit potentials?

Possible Reasons Underlying the "Suboptimal" Project-Financing Structure

The following are some possible reasons why New World would choose to use what on the surface seems to be a suboptimal mix of project debt vs. project equity financing project-financing structure:

1. Strong financial affordability
2. Lack of access to external project debt financing
3. Corporate Finance Policy does not welcome the use of external debt
4. The structure is really not so suboptimal after all
5. Infrastructure development is only a vehicle upon which New World can carry out its strategy in China

Strong financial affordability

New World is a long-standing Hong Kong conglomerate with great financial clout. Although only average to slightly above average compared to US companies in terms of Long-Term Debt-to-Equity ratios (US companies' Long-Term Debt-to-Equity ratios average 25%), New World's ratios are considered low and very solid compared to most Hong Kong companies in comparable businesses. Below are the Group's ratios over the years:

1995	1994	1993	1992	1991	1990
28.91%	23.38%	16.56%	17.29%	21.84%	18.42%

Moreover, the Group has behind it, a very large share of equity reserves (some two-thirds of Total Assets) which can be used to fund future investments. Below are the figures of New World's equity reserves and total assets over the years:

	1995	1994	1993	1992	1991
Reserves	$45,892.6	$46,139.7	$34,740.6	$28,817.8	$22,509.2
Total Assets	$65,963.5	$62,598.1	$45,365.6	$38,247.8	$31,965.8

Because of its strong financial resources, the company can afford to finance a large portion of its infrastructure projects with project equity financing.

Lack of Access to External Project Debt Financing

It is a known fact that local Chinese governments cannot give guarantees. Therefore, this right was reserved for the Chinese banks, such as the Bank of China. However, this situation changed on March 1, 1994, when a new set of regulations

came out forbidding banks from issuing guarantees. As a result, foreign banks / lenders which require these guarantees before making any syndicated loans have been unwilling to lend to projects in China.

Although access to external project debt-financing has reduced greatly since China's new investment policies restricting the provision of sovereign guarantees, in the case of companies whose net asset value is greater than the amount of the loan, project debt-financing can be obtained by using the assets of the sponsoring company as the collateral through the method of counter-guarantees, in essence, full-recourse project debt-financing.

New World Development with consolidated total assets of HK$65,963,500,000, and consolidated net assets of HKD$47,566,900,000 does have this option to obtain project debt-financing, and has exercised this right in the past as can be seen in their two projects: the Guangzhou City Northern Ring Road project and the Zhujiang Power Station - Phase I. In the former, New World obtained a US$97.5 million syndicated loan facility through providing guarantees by its wholly-owned subsidiary, Hong Kong Island Development Ltd., while in the latter, it obtained a US$140 million syndicated bank loan through providing guarantees directly.

Because project debt-financing can be achieved through the use of full-recourse loans guaranteed by the company, a lack of project debt financing in its project financing arrangements must largely be a conscious decision at the corporate level, that is, the company's corporate finance policy.

Corporate Finance Policy Does Not Welcome the Use of External Debt

As a business "grown from scratch" from Dato' Dr. Cheng Yu-Tung and passed to son, Mr. Cheng Kar-Shun, Henry, the business is primarily one that is family-owned as can be observed in the family's interest, through Chow Tai Fook Enterprises, of 637,514,877 shares or approximately 39% of the company's outstanding shares. Moreover, as a large number of the directors, those who actually run the company, are the Cheng family members themselves, the directors would be extremely eager to protect the company's equity investments. Not surprisingly, bankruptcy would be a term much to be avoided. Thus, New World's corporate finance policy, to eliminate the threat of bankruptcy, would be strongly risk and debt adverse, and would thus keep a relatively high balance of equity in the company's corporate finance structure. Proof of this unfavourable attitude towards external debt financing rests in the company's relatively conservative gearing ratios (especially by Hong Kong standards). We present here again, the company's long-term debt-to-equity ratios over the years:

1995	1994	1993	1992	1991	1990
28.91%	23.38%	16.56%	17.29%	21.84%	18.42%

Such a debt adverse corporate mentality would of course directly result in an avoidance of debt at the project level especially since in China projects, all loans without the assistance of government guarantees, would have to be full-recourse meaning that they would lead to instant recourse on the parent company's assets in the case of credit default. Therefore, the company, in its corporate financing policy, places

a very explicit cap on the amount of debt that can be obtained at the project level. In the prospectus of New World Infrastructure, the Group's infrastructure spin-off, we find the following peculiarity:

> The Directors believe the aggregate amount of loans which the New World Group will be required to guarantee in relation to the Projects and the future projects in the PRC which are currently under negotiation... will increase substantially in the near future, but in any event will not exceed HKD$5,024 million.[6]

The Structure is Really Not So Suboptimal After All

A first glance at the financing structure of New World's projects and the high levels of project equity financing will seem to indicate a lower than average level of ROE. However, success or failure of a project cannot be determined by these rough indications. While seemingly suboptimal by general standards, there are two areas which indicate that the structure may not be so suboptimal after all.

First of all, New World's projects present relatively short payback periods, meaning funds will be released for other uses quicker than in average projects. This also means that the ROE at first suggested may actually be much more attractive than that which we originally thought since the time value of money when factored into the picture could make a great difference. Therefore it transforms the traditionally simple

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[6] Credit Lyonnais Securities (Asia) Limited, New World Infrastructure Limited Placing and New Issue, October 17, 1995, pp. 112.

relationship between ROE and financial leverage obtained by high debt financing by adding to it the additional variable of shortened duration.

Secondly, the other point which increases the attractiveness of the projects is the way the project arrangements address in detail all the factors which could adversely affect the deals. In risky China projects, ability to minimize and address default risks arising from political and other environmental uncertainties is crucial since attractive returns stemming from high leverage could turn to nothing due to some poorly predicted external factors. New World addresses issues such as foreign exchange risks and meeting minimum IRR's with a number of very detailed contracts. However, in an environment such as China, contracts in themselves to cover these risks are not enough; the only way to truly protect your investments is to pull out as soon as possible. New World performs just that by limiting repatriation of its principle equity investments with interest to a maximum number of years (generally five years of operations). However, to obtain its almost immune status to project risks, it must sacrifice its upward potentials to the local partner.

Infrastructure Development As Only A Chinese Investment Vehicle

Perhaps the most important reason for New World's seemingly suboptimal project arrangements where returns lack leverage and upward profit potentials are limited is the conglomerate's view of its infrastructure business in China. For New World, infrastructure development is not the end but the means upon which the company carries out its long-term strategy: property development in China. The company does not look to infrastructure as the area from which it will derive its most attractive returns, but rather, looks at this business as one of the pathways from which

it can obtain first, most efficient and most effective access to its core business opportunities.

By analyzing the company's actions and statements, we come to the conclusion that New World's infrastructure developments fulfill two purposes:

a) "sweetens" local governments into providing prime pieces of land for the Group's more lucrative commercial and residential developments at low prices

b) establishes a base for steady long term growth by providing acceptable steady recurring income streams that will allow the Group to take advantage of the most favourable market opportunities in its commercial and residential developments.[7]

The following two statements from the Group's Annual Report 1993 and the Group's Interim Report 1994/1995 respectively confirm our suspicions:

> The Group's policy on China investments is long term commitment. Between 20-25% of the Group's net asset value is designated for

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[7] Although returns on commercial and residential developments could be highly lucrative, the industry is an extremely volatile one in which at certain points of time, profits could be immense, and at other times, destructional. Thus, the key to achieving consistently attractive and above average returns is to have the ability to ride the trends of the market. In order to do this, a developer would need to have the financial resources to simply wait out and not sell when the market is down, and sell only when the market is booming. By having a large strong and predictable earnings base such as infrastructure investments enables the Group to apply this cunning strategy.

investment in China with primary focus on infrastructure and property development projects. The Group's strategy is to invest in a diversified portfolio consisting of short, medium and long term projects, with the latter accounting for 50% of its investments. Through joint ventures with these China partners, the Group has been successful in accumulating more than 50 million square metres of land for various development purposes. The land will be developed in phases in accordance with market conditions.[8]

The investments in infrastructure provide a steady and recurring income which can be used to fund other developments during cyclical upturns. The Group has also in the past accumulated a sizable landbank at low cost for future development. Tracts of land will be developed in phases in accordance with the prevailing market conditions. Apart from following well-defined financial criteria to evaluate potential investments in China, the Group normally invests in those projects which have government partners or considered government priorities. Such investment strategies have enabled the Group to cultivate strong working relationships with all levels of government authorities in China.[9]

From the above statements we can discover why New World would use a higher level of equity in its financing structure. There are basically two reasons. The

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[8] New World Development Company Limited Annual Report 1993, pp. 19.

[9] New World Development Company Limited Interim Report 1994/95, pp. 8.

first is speed. As a developer interested in obtaining the most enviable pieces of rare land, it must move faster than other developers to take advantage of the opportunity; however, seeking debt financing without full recourse is a very time-consuming process since sources such as export credits take a minimum of six months to be processed. Since the duration of its equity investments is basically very short term, it would be acceptable to the Group to use this form of financing. The second explanation is greater confidence in its projects. Because its strategy of accommodating to the needs of its PRC partners will allow it to build up amiable relationships in the mainland, the Group feels more confident of its infrastructure investments and would be more comfortable in accepting the risks associated with a higher equity involvement.

Also supporting our argument of New World's use of its infrastructure investments is the Group's policy regarding its property developments. We find that New World's property developments are divided into three different types:

a) Government Housing Projects,

b) City Core Redevelopments, and

c) Commercial and Residential Developments.

By using the first two types strategically, New World marvelously improves its prospects in the area where it excels, that is, commercial and residential developments. Below, we discuss how the first two types of property developments contribute to New World's long-term China strategy of reaping unusually low-risk and magnificent profits on its core business of commercial and residential developments.

a.) Government Housing Projects

Government housing projects proceed as follows:

Each project consists of the development of moderate-quality subsidized housing built in accordance with government specifications as well as commercial properties. Apart from providing land free of premium, the Government bears the responsibility for underwriting sales of all units upon completion. The advantages of all these projects will spread over to all parties concerned. The citizens receive proper housing, the local Government fulfills its obligation of providing citizens better living conditions, and New World is guaranteed **reasonable** financial returns with low risk.[10]

Participating in the basically low margin, unattractive ventures of developing government housing projects in China plays a crucial role in allowing New World to gain a tremendous portion of the most lucrative commercial and residential sites in China. By accepting these projects, it "sweentens" local governments into providing it with prized land for development. This is because in order to get promoted in China, local politicians must meet their political agenda of providing welfare to Chinese citizens, and of these agenda, low-cost housing is the most welcomed. Thus, in return for the favour, local governments will reward New World handsomely by providing it with prized land at very low cost, allowing the developer to accumulate substantial high quality land banks in the locality. Such a strategy of using philanthropic endeavours builds up warm political and joint venture relations to ensure success in future cooperations by revealing to the Chinese that New World is not there to exploit them.

b.) City Core Redevelopments

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[10] New World Development Company Limited Interim Report 1994/1995, pp. 10.

Closely related to its strategy with regards to Government Housing Projects is its strategy related to city core redevelopments. As every retailer knows, the three biggest determinants to success are: location, location, and location. Therefore, understanding how developments will affect customer traffic flows is crucial. As a commercial/residential property developer, New World would be most concerned about obtaining sites that will be attractive to customers. By playing a key role in city core redevelopments, it would receive first hand exclusive knowledge about these sites before its competitors, allowing it to reap magnificent profits later. Moreover, by taking upon the task of city core redevelopments, like the government housing profits, it would be able to nurture strong business relationships or "guanxi" with key contacts that would enable it to increase its land bank of prized sites at greatly reduced prices. Below is a description of how this sector of property development operates:

New World is one of those first foreign developers to team up with local governments gaining exclusive rights to comprehensively redevelop these areas. Under these joint ventures, the local governments provide large tracts of land in prime locations at low premiums and advantageous payment terms, with New World reciprocating in terms of capital and expertise. There are special investment incentives such as allowances for higher plot ratios and special reductions in relocation expenses provided to the joint ventures. In addition, New World is able to establish a degree of exclusivity and control through its close involvement in overall town planning, design and construction of these city cores. These joint ventures will pay off handsome dividends to both New World and the local governments. While the government redevelops aging city cores into modern city centres, New World is able to gain low-

cost access to the most desirable land for its future property development activities to the effect of reaping attractive returns with minimal risk exposure.[11]

Indeed, we have found that New World's land bank has grown considerably over the years. In the 1992/1993 Interim Report, it says:

The major thrust of the Group's expansion is now in China. The Group has accumulated a total attributable land holding of over 25 million square feet [7.615 million square metres] in the key cities in China.[12]

By the time of the Annual Report 1993, this land holding has grown considerably:

The Group has accumulated, through JV's with these China partners, more than 50 million square metres of land for various development purpose.[13]

In our calculations, we totaled a land bank of 54,775,202 square metres.[14]

By 1995, this portfolio has reached a total of 181,245,000 square feet[15] (55,207,227 square meters with the addition of the Guangzhou Dong Shan District Development Project whose site area has not yet been finalized.

Following is a chart revealing the breakdown of the Group's investments in the PRC:

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[11] New World Development Company Limited Annual Report 1995, pp. 17-18.

[12] New World Development Company Limited Interim Report 1992/1993, pp. 10.

[13] New World Development Company Limited Annual Report 1993, pp. 19.

[14] New World Development Company Limited Annual Report 1993, pp. 20-21.

[15] New World Development Company Limited Annual Report 1995, pp. 31-33.

Figure 8. Joint Ventures in the People's Republic of China

	1994	1993	1992
	HK$Millions	HK$Millions	
HK$Millions			
Analysis by activities			
Infrastructure	2,908.8	1,579.7	721.7
Property developm't	3,526.2	1,370.0	17.5
Others	777.5	395.3	360.9
Total	7,212.5[16]	3,345.0[17]	1,100.1[18]

Note that as New World's strategy unfolds, we can see how after establishing a base in infrastructure projects, growth in property investments will greatly exceed those in infrastructure. On the other hand, it is interesting to note that of New World's infrastructure developments, almost all are already operational, and are already contributing cash:

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[16] New World Development Company Limited Annual Report 1994, pp. 40.

[17] New World Development Company Limited Annual Report 1994, pp. 40.

[18] New World Development Company Limited Annual Report 1993, pp. 45.

Figure 9. NWIL's Project Status

Infrastructure Project	Status
Guangzhou City Northern Ring Road	Operational
Shenzhen-Huizhou Expressway (Huizhou Section)	Operational
Guangzhou-Zhuhai East-line Expressway	Under Construction
Roadway No. 324 (Gaoayo Section) in Zhaoqing	Operational
Roadway No. 321 (Fengkai Section) in Zhaoqing	Operational
Roadway No. 1964 (Zhaojiang Section) in Zhaoqing	Operational
Roadway No. 321 (Deqing Section) in Zhaoqing	Operational
Roadway No. 1960 (Guangning Section) in Zhaoqing	Under Construction
Zhujiang Power Station - Phase I	Operational
Wuhan Bridge Development	Operational
Wuhan Airport Expressway	Operational
Sea-Land Orient Terminals Limited	Operational
Asia Terminals Limited	Operational
Tate's Cairn Tunnel Company Limited	Operational
Zhujiang Power Station-Phase II	Under Construction
Wuhan Tianhe Airport	Operational
Qingyuan Power Plant (Qingyuan, Guangdong)	Operational
Dalian Xiang Hai Thermal Power Plant (Dalian)	Operational

From this analysis of New World's China businesses, we can understand why it does not persist in obtaining for its infrastructure business, the most attractive financing structures profitwise. More important is for the company to keep up good relationships and receive exclusive knowledge and opportunities for it to promote its core property development business. The Group's mentality is that the sacrificing of certain aspects of the parts are necessary for the good of the whole. This mentality is well documented in the following statement of how the company views its China business:

> Overall, the Group so far has achieved a healthy portfolio of infrastructure and property investments in China with **most** of them being committed on favourable terms.[19]

Therefore, the Group's aim is simply to limit its losses, protect its principle equity investments, and receive acceptable profits on its long-term, relationship-building and opportunity procuring businesses to allow it to reap tremendous profits in its lucrative core business, in order to fulfill its long-term, expansionist strategy in China:

> The major thrust of the Group's expansion is now in China. The Group has accumulated a total attributable land holding of over 25 million square feet in the key cities of China and is actively pursuing a number of infrastructure projects in Southern and Central China. These projects, together with the existing businesses in Hong Kong and overseas, should provide a basis for long-term growth for the Group.[20]

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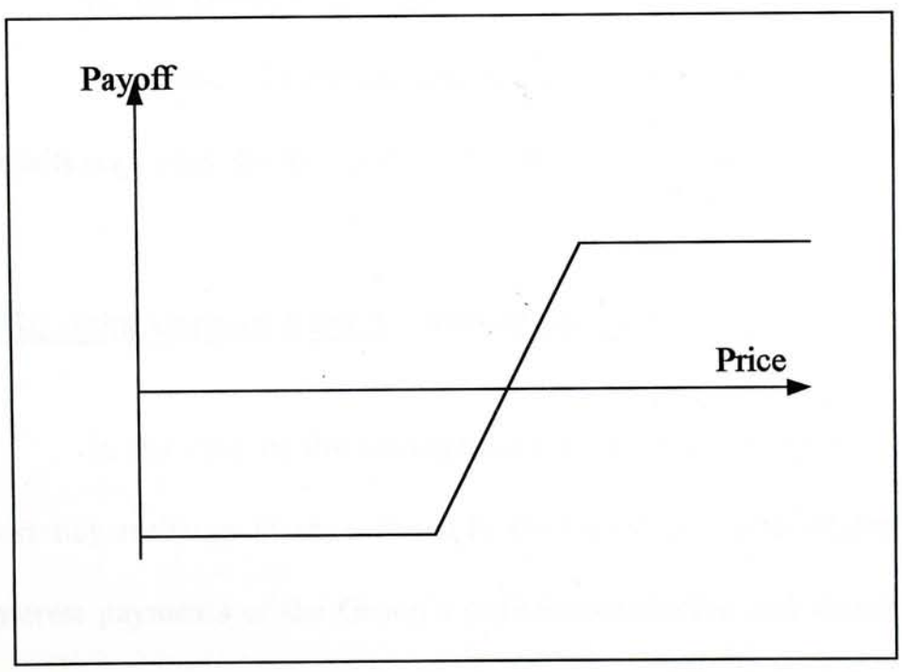
[19] New World Development Company Limited Interim Report 1994/95, pp. 13.

[20] New World Development Company Limited Interim Report 1992/93, pp. 10.

A Very Unique Set Of Arrangements At The Project Level

Because of the reasons described in the above section, what we discover is that New World Development's project arrangements is a study of eliminating downside risk. The project financing strategy causes the company to adopt a set of peculiar arrangements which concentrates on protecting its principle equity investment to the extent where to obtain any more protection, the company's upside profit potentials would be capped. Therefore, the overall structure can be described as bearing both limited downside potential and limited upside potential, in essence, the payoff structure one receives in the situation of a simultaneous purchase of a put and call option (a "Bull Spread"), as illustrated below:

Figure 10. The Bull Spread Option



We will now look at some of the main features that create this unique payoff structure.

Extension of Joint Venture Terms

In the Guangzhou City Northern Ring Road project, the Shenzhen-Huizhou Expressway (Huizhou Section) project, the Guangzhou-Zhuhai East-line Expressway project, and the Wuhan Airport Expressway project, the venture term can be extended subject to the relevant PRC approvals based on one or a number of the following reasons, depending on the individual project:

i. currency exchange losses suffered in respect of principal repayments and interest payments on the Group's capital contribution and shareholders' loan and on any external loans
ii. economic loss due to force majeure
iii. construction cost overruns
iv. devaluation of the Renminbi
v. delays in the repayment schedule on the partners' total contributions
vi. the Group's average annual after tax return over the life of the contract period is below the agreed upon percentage

Details regarding the four projects mentioned above are found in Appendix 5.

PRC Joint Venture Partner Directly Bears the Losses Suffered by the Group

In the case of the Guangzhou City Northern Ring Road project, half of any currency exchange losses suffered by the Group in respect of principal repayments and interest payments of the Group's capital contribution and shareholders' loans and the Ring Road Syndicated Loan will be compensated for out of GFC's share of profits in the joint venture.

Renegotiation of Revenue Terms To Ensure Repayment Schedule

In the Wuhan Airport Expressway project, if, after the end of the seventh year of the joint venture, New World determines that its equity contributions and shareholders' loans would not be fully repaid by the end of the tenth year of operation of the expressway, WACD, its joint venture partner would have to, using its negotiations clout, find ways to increase revenues after operating expenses to allow for repayment of New World's investments within the ten-year period.

Priority and Guaranteed Repayment Schedule on New World's Principal and Interest Payments

In the case of the Guangzhou-Zhuhai East-line Expressway, priority is given to the repayment of New World Guangdong's shareholders' loans within twelve years of the opening date of the toll expressway. In the Wuhan Airport Expressway project, full repayment of New World's contributions are guaranteed within a period of ten years; if WACD, the PRC joint venture partner cannot find ways to increase revenues after operating expenses to allow for the repayment of New World's investments within the required ten-year period, it would have to pay the Group the difference.

In many of New World's projects such as Roadway No. 324 (Gayao Section) in Zhaoqing, Roadway No. 321 (Fengkai Section) in Zhaoqing, Roadway No. 1964 (Zhaojiang Section) in Zhaoqing, Roadway No. 321 (Deqing Section) in Zhaoqing, Roadway No. 1960 (Guangning Section) in Zhaoqing, the cooperation period of the joint venture where the project is generating revenue is clearly divided into "variable but deadline constrained guaranteed repayment periods", "fixed and non-guaranteed

repayment periods" and "profit-sharing periods". Generally, the arrangement works as follows:

Repayment Period I (Variable): Repayment of New World's Contributions

From the date of commencement of toll operations to when New World receives total repayment with accrued interest on its total contributions or within five years of operations, whichever is earlier, any remaining revenues after operating expenses, taxes and statutory contributions will be allocated at a predetermined higher percentage to the Group and a predetermined lower percentage to the PRC partner(s) for the purpose of making quarterly principal and interest payments on the joint venture partners' total contribution. At the end of this maximum period of five years, if New World's contributions are not fully repaid, the PRC joint venture partners would have to raise funds to repay New World the outstanding principal and interest. These additionally raised funds would be treated as shareholders' loans to the joint venture.

Repayment Period II (Fixed): Repayment of the PRC JV Partners' Contributions

After which, for a fixed period of three years, any revenues available for distribution will either, depending on the project arrangements, either :

a) first be used to repay the outstanding contributions of the PRC joint venture partners, and then allocated between New World and the PRC joint venture partners at the predetermined profit-sharing allocations, or else,

b) be allocated at a predetermined higher percentage to the PRC joint venture partners and a predetermined lower percentage to the Group for the entire three-year period.

At the end of the fixed three-year period, should there be any balance outstanding on the PRC partners' contributions and accrued interest, this amount will

either, depending on the project arrangements, be written off at the end of the period or else, will cease accruing interest, cease to be payable by the joint venture, and will be treated as a capital reserve on liquidation of the joint venture.

Profit-sharing Period (The Remainder of the Joint Venture Period)

For the remaining period of the joint venture, any revenues available for distribution will be allocated between New World and the project JV partners at the predetermined profit-sharing allocations.

The result of these arrangements for New World would be certain repayment of the Group's equity investments together with accrued interest at a certain time, but with no hope of windfall gains (or losses) in the periods before the profit-sharing periods. As for the PRC joint venture partners, although there is the risk that they may not be able to recoup their equity investments within the set time frame, and thus, may have to write-off losses, there is the potential to make large windfall gains during the repayment periods, should the project produce greater revenues than expected.

Below is a chart illustrating the details on the projects which follow the above blue-print of arrangements:

Figure 11. Summary of NWIL's Projects

Project Name	New World Repayment Period	PRC Partners' Repayment Period (3 Years Following)	Profit Sharing Period	End of PRC Partner's Repayment Period
Roadway No. 324 (Gaoyao Section) in Zhaoqing	Feb. 1994 up to maximum Jan. 31, 1999; Group: 52% Partners: 48%	first, repay PRC partners' contributions, remaining time: Group: 40% Partners: 60%	Up to 2015; Group: 40% Partners: 60%	Write-Off
Roadway No. 321 (Fengkai Section) in Zhaoqing	March 1995 up to maximum Dec. 31, 1999; Group: 82.5% Partners: 17.5%	Group: 17.5% Partners: 82.5%	Up to 2019; Group: 45% Partners: 55%	Write-Off
Roadway No. 1964 (Zhaojiang Section) in Zhaoqing	December 1995 up to maximum Dec. 30, 2000; Group: 82.5% Partners: 17.5%	Group: 17.5% Partners: 82.5%	Up to 2019; Group: 70% Partners: 30%	Write-Off
Roadway No. 321 (Deqing Section) in Zhaoqing	December 1995 up to maximum Dec. 31, 2000; Group: 85% Partners: 15%	Group: 15% Partners: 85%	Up to 2020; Group: 45% Partners: 55%	Capital Reserve
Roadway No. 1960 (Guangning Section) in Zhaoqing	July 1996 up to maximum June 30, 2001; Group: 85% Partners: 15%	Group: 15% Partners: 85%	Up to 2020; Group: 55% Partners: 45%	Capital Reserve

Limited or No Responsibilities For Cost Overruns or Delays

In the Roadway No. 1964 (Zhaojiang Section) project in Zhaoqing, New World places a cap on the amount above estimated total investment cost it is willing to

accept. The Group will only provide funds for cost overruns up to 5% above the estimated total investment cost, in the proportion of 20% of such costs.

As for Roadway No. 321 (Deqing Section) in Zhaoqing and Roadway No. 1960 (Guangning Section) in Zhaoqing, New World places a disclaimer on any additional capital required so that any additions would have to be provided solely by the PRC joint venture partners. Moreover, these additional funds required would not be treated as a capital contribution, and thus, would not affect the profit distribution percentage.

Guaranteed "Minimum Revenues"

In the above description of the fixed repayment schedules, we could already see that New World would certainly be able to receive full repayment of its equity investments together with accrued interest at a fixed time, but the arrangements would leave the company with no hope for windfall gains (or losses) in the periods before the profit-sharing periods. In its power generation project, Zhujiang Power Station - Phase I, this limits on losses and sacrifice of upward gains is also a very large feature.

In this project, the PRC partner, GDGC is the operator, and the offtake agreement guarantees a minimum sales of 3 billion Kwh of electricity annually. GDGC guarantees a distributable profit to the joint venture in this amount with an increment of Rmb0.025 to Rmb0.10 during the first 10 years. Furthermore, it has undertaken to ensure that the joint venture will have sufficient revenues to pay loan principal and interest payable by the joint venture (including the external loans and shareholders' loans but excluding working capital facilities). In the case that the annual revenue of the joint venture is not sufficient to meet the guaranteed profit for distribution, GDGC

will pay any shortfall out of its own funds. However, to obtain these assurances, New World has to forego any upside gains in revenue: any extra profit (stemming from either sales above the 3 billion Kwh per year or increases in the tariff) above the guaranteed profits belongs to GDGC.

Market Interpretations Of New World's Infrastructure Venture: an infrastructure power play which, while seemingly to provide suboptimal prospects, actually present a archetype of how to successfully structure infrastructure projects and do business in China

We can analyze New World's infrastructure venture by examining the stock price movements of the parent company, New World Development Company Ltd. and its subsidiary, New World Infrastructure Limited from a few months before the spin-off's October 25, 1995 trading debut on the Hong Kong Stock Exchange up to the present. What we discover is that the infrastructure spin-off creates gains both for the company and investors as the value of the shares of both the parent company and the subsidiary increase substantially. Graphs revealing the price movements of New World Development Co., Ltd. and New World Infrastructure Ltd. are found in Appendix 6.

From a low of $15.05 in late January 1995, shares of New World Development surge up to $32.80 a week before its subsidiary's debut and continues to climb upward at a still fast, but slightly reduced pace, reaching up to $37.40 in the week of Jan. 22-26, 1996. The reason for this increase lies on the strategic use of the infrastructure subsidiary. It is able to help the parent progress towards its long-term China expansionist goals.

As for New World Infrastructure Ltd., the price climb occurs much later, but manages to create spectacular gains for its shareholders. The shares debut at

HK$12.75, a considerable discount of 6% below the company's net tangible asset value per share of $13.50, and as a result, is oversubscribed. However, its trading debut is rather lackluster; although it occupied the top slot on the HKSE's most active list on the day of its trading debut, October 25, 1995, the share price only increased a minuscule 1.6% to HK$12.95, with a intraday high of $13.00 amid heavy volume trade valued HK$248.5 million. Despite strong support from Credit Lyonnais Securities (Asia) Ltd., the share price dipped as low as HK$12.85, almost reaching the offer price of HK$12.75. By the week of November 13-17, 1995, the stock hits rock bottom at $12.40, some $0.35 below the IPO price. Part of this less enthusiastic initial reaction can be explained by the seemingly suboptimal structures New World imposes on its China infrastructure projects which seem to suboptimally use corporate funds and limit upward potentials. However, when investors begin to appreciate New World's cautious structure arrangements especially when compared to originally more attractive ventures such as Hopewell's CEPA which suffers from the parent company's financial distress and opaqueness as well as high priced, and see that less leveraged ROE's with shorter durations could lead to strangely more positive results in a country like China, they begin to switch from the more risky developers to New World Infrastructure, and the price of the subsidiary goes up. Thus, in the week of November 27- December 1, 1995, the price begins its upward ascent and hits a high of $17.55 in the first quarter of 1996. Through time, New World reveals that its subsidiary is a company bound for steady long-term growth and therefore, "provides an opportunity to invest in infrastructure projects in high-growth regions in China, under the guidance

of a management which has demonstrated its ability to operate profitably in this area."[21]

Conclusions

In conclusion, in volatile and foreign environments such as China, it is not possible to judge a project's relative success or failure simply by regarding ratios of project debt vs. project equity financing; likewise, it is not possible to reach any sensible conclusions by a simple calculation of ROE. This is because in such environments, a number of other factors come into play to complicate such assessments such as political risks and ease and availability of debt financing. Finally, perhaps the most important factor upon which to assess the relative success/failure of a project is the needs, resources and underlying purposes of the investors/sponsors. Only when all these factors are taken into account can one make any accurate assessment of the success/failure on a given project.

In the case of New World Development Company Limited, its infrastructure projects are financed almost purely by equity investments (consisting of equity contributions and shareholders' loans), with very little debt employed. Moreover, the company puts a cap on its upward profit potentials. On first glance, such a financing structure would seem to indicate a lower ROE, and thus a suboptimal use of funds, causing us to reach the premature conclusion that New World's is a suboptimal project

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[21] "New World Infrastructure Fairly Valued", J.P. Morgan, Dow Jones International News,Dec. 13, 1995. Sec. 2, pp. 1.

financing structure. However, once we begin to unearth the underlying reasons for the company's peculiar partiality to project equity financing and discover the carefully crafted arrangements at the project level, we reach a totally new and opposite conclusion.

New World's Project Financing Arrangements: A Final Assessment

New World's is a case of phenomenal success in project financing and doing business in China. In carrying out its expansionist plans into China, that is, opening the way for prosperity in its core business of commercial and residential property development, it chooses a set of project arrangements and financing structure effective both to achieving its long-term strategy in China and matching the constraints and needs of the PRC environment.

Firstly, in adopting a seemingly suboptimal structure and arrangement at the project level, New World is able to turn the features of the PRC environment to its advantage to allow it to achieve its long-term property development strategy. Basically, it does so by making use of the Chinese proverb mentality of "Receive a drop of water, Dig a river in return". By rushing to provide its PRC partners and thus the local governments with the "first drops of water", through the undertaking of projects crucial to its partners' political agenda (but perhaps less attractive) and providing them with favourable terms in the project financing arrangements, New World obligates and delights its partners and the local governments into committing themselves to the projects and furnishing it with the most desirable sites (at much discounted prices) for future commercial and residential property development.

Secondly, New World's project financing structure and arrangements are well adapted to the constraints and requirements of the PRC environment. The company destroys our traditional notion of a high degree of equity financing as suboptimal by bringing in the new variable, investment duration, into our traditional two factor (ROE and financial leverage) project assessment equation. New World reveals to us that in the case of doing business in China, project success is based on receiving an acceptable rate of return on investment and getting the principal investment back as soon as possible, that is, achieving a shortened duration, even at the expense of sacrificing all upward profit potentials. Furthermore, during this period of investment and during a project's operational period, all attempts need to be made to protect the initial principal investment and to insulate the project from completion risks, credit risks, political risks, etc., through the careful drafting of contracts with contingency plans, in order to eliminate or minimize losses. What we discover is that the traditional call option payoff structure envisioned in projects in the west is perhaps rarely feasible in a country like China, and therefore, a project will receive a greater probability success when conceived as an arrangement which limits both losses and upside potentials, giving us in essence, a "bull spread" or a simultaneous call and put option payoff structure.

Concluding Words

Through the New World case, we see that structures attractive in the west may be unattainable in Asia, while structures unattractive to projects in the west can prove to be highly successful in Asia. Asia functions under a different set of rules and

assumptions. Therefore, in order to achieve success in project financing in Asia, it is necessary to redefine the traditional parameters.

CHAPTER III

HUANENG POWER INTERNATIONAL INC.

Introduction

Thesis

Project Finance in its primitive form is structured financing for a capital intensive project in which the assets themselves (physical and legal) serve as the collateral for lending. Risks for the financing are allocated amongst the different parties involved in the project through the use of non-recourse or limited recourse debt. These parties include the project sponsors, the government, the construction companies, equipment suppliers, banks, users of the products of the projects, and so forth.

Over the years, changes in the global capital market place have transformed the outlook of Project Finance. Innovative structures are put in place by skillful practitioners. These innovations include open-ended and close-ended structures and pooled projects, to name but a few. Yet, the ultimate goal of such innovations is still

the same: to reduce the risks of the projects while providing maximum returns to the different capital providers of the project(s).

In the case of HPI, through the innovative design of a hybrid structure of RMB denominated debt and equity financing, the company is able to create a highly sophisticated structure, a structure which can truly be said to be superior to others of its kind. This structure, using an open-ended project finance structure in contrast to the traditional close-ended model and tied to a new tariff-setting mechanism, actually destroys the traditional relationship between debt financing and equity financing. As a result, debt financing, rather than impair further equity financing as the debt-to-equity ratio swells, actually provides a positive reinforcement. The result is an interactive financing structure which allows HPI to actually reduce the risks involved in the projects while providing better than average returns for its different capital providers.

However, what the participants failed to acknowledge was that the project was a project in Asia. With the lack of a clear legal and regulatory framework to enforce contracts, the Chinese government's unwillingness to observe the pricing policy arrangements, resulted in the loss of all competitive advantage in the project structure in practice and a loss of confidence in investors' hopes.

Company Background

The company was established on June 30, 1994, to develop, construct, own and operate large coal-fired power plants throughout China using modern proven technology supplied by leading international equipment suppliers.

The company currently wholly owns and operates five power plants, the "operating power plants", with an aggregate installed capacity of 2,900 MW, which are located in five of China's prosperous provinces (Liaoning, Fujian, Hebei, Jiangsu and Guangdong). In addition, the company is actively developing five of its "planned power plants" with a planned installed capacity of 3,900 MW, and will acquire from HIPDC before December 31, 1994, three other planned power plants currently under development or construction with a planned installed capacity of 2,000 MW. In addition, the company has preliminary plans to add 6,100 MW of installed capacity through a number of "projected power plants" located adjacent to certain of the operating power plants and planned power plants. The planned and projected power plants are located in the same five provinces as the operating power plants.

HIPDC

Huaneng International Power Development Corp.(HIPDC) was established in 1985 as a Sino-foreign joint venture. As a pioneer in raising foreign and domestic capital in order to import power generating equipment, HIPDC has developed power plants and transmission facilities jointly with local governments on a nationwide basis.

The Formation of HPI

HIPDC has been operating and developing a number of power plant projects nationwide. In 1993, the company estimated that its capital requirement would total to

RMB 35,551 millions from 1994 to 1999[22] for all the projects that the company holds in the five coastal provinces.

It is expected that both debt and equity will have to be used to finance the planned power plants and projected power plants. The use of debt financing, however, might result in higher leverage for HPIDC. Since each of the existing five operating plants wholly owned by the corporation has already incurred a significant amount of borrowing to finance its own construction, operation as well as future expansions, the high gearing ratio-base made it very difficult for the corporation to obtain more debt financing. Moreover, such a ratio-base also meant that whatever debt financing it obtained would have to proceed at a very high interest cost. Thus, for the purpose of fund raising, the corporation formed a new subsidiary, HPI, on June 30, 1994.

The Reorganization of HPI

As part of the fund raising effort by HIPDC, HPI has undergone a reorganization shortly after its formation. Under the reorganization process, the five operating power plants were grouped under a single entity under the ownership of HPI. An initial public offering of HPI's shares also made a part of the fund raising effort.

Under the Sino-foreign joint venture, HIPDC was not allowed to be listed in the China market, which limited its source of financing. By establishing a new private company and listing it, HIPDC could raise additional funds for the future development of power plants.

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[22] Appendix 8

On the other hand, the retirement of some government loans during the reorganization helped to reduce the debt-equity ratio. A lower ratio would enhance HIPDC's future debt financing charges.

Asset Transfer

As part of the process, HIPDC's ownership in the five operating plants and the planned plants would be purchased by HPI. Five planned power plants and projected power plants would also be transferred to HPI[23]. Moreover, HPI planned to acquire three other planned power plants under construction or development from HIPDC before December 31, 1994.

Subject to PRC laws and regulations, the purchase of the power plants require an appraisal of the current replacement cost of all the fixed assets. This reconciliation led to an increase of RMB 4.11 billion in value of net property from RMB 5.74 billion to RMB 9.85 billion, which would be helpful for the future rate setting. Consequently, the values of the plants represented HIPDC's capital contribution to HPI in exchange for a share of owners' equity to HPI.

Debt Transfer

As the operating and planned power plants were financed by debt, in acquiring these assets, the loans related to them were also transferred to HPI. A portion of local governments loans (Rmb435 millions) were retired in return for equity ownership of

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[23] Appendix 8

the company (34.77%) for the respective local governments. This eventually reduced the debt ratio from the initial level of 10.09 (6,904,677 / 684,409) to 1.24 (6,470,052 / 5,234,893) after reorganization, which favored the company for future debt raising. The remained outstanding loans from local governments together with the long-term bank loans and central government loans on-lent by HIPDC to the company were reclassified as shareholders' loans[24].

Debt financing included loans from multilateral and bilateral institutions, export credit agencies and commercial lenders, as well as the issuance of debt securities. Although there had been little use of limited-recourse and non-recourse project debt financing, HPDIC believed that the increased equity capital from the initial public offering and its improved earnings potential reflecting application of the pricing policy would increase its financing alternatives.

Combined Offering (IPO)

In the IPO, about RMB 5,129 million was raised. After deducting the power plant's set up cost[25] in 1994: RMB 1,949 million, the rest was deposited into a foreign currency account at a bank in China that is permitted to engage in foreign exchange

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[24] Appendix 8

[25] This refers to the initial construction cost including interest during construction for the Dandong Plant, Shangan Phase II Expansion and Shantou Coal-fired Plant as shown in Appendix 8

transactions. HPI would be entitled to use such deposits to pay for goods and services and to repay foreign currency-denominated debt.

Figure 12. Listing Information of HPI

Corporation Date:	June 30, 1994
Listing Date:	October 13, 1994

Number of Shares being Offered:	
American Depository Receipts (ADR)	31,250,000
Equivalent to Class N Ordinary Shares	1,250,000,000

Offering Price (per ADS)	US$ 20.00
Proceeds to the Company	US$605,625,000.00
Underwriting Discounts and Commissions	US$ 19,375,000.00
Total	US$625,000,000.00

Post-Offering Ownership

After the reorganization, HIPDC, the principal shareholder owned 40.23% of the Company's shares, 7 local government investment corporations occupied 34.77%, while public investors held the remaining 25% shares.

Figure 13. The Post-Offering Ownership of HPI

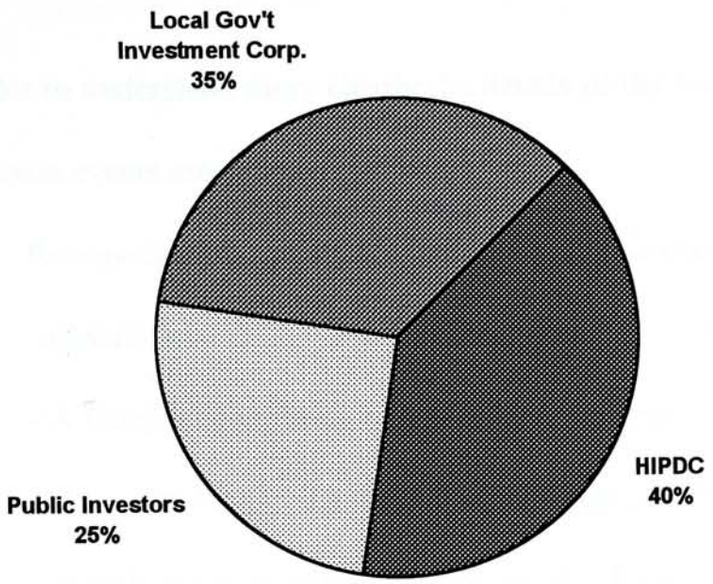

Figure 14 The ownership status of each company

	No. of Shares	% of Ownership
Class A Ordinary Shares		
HIPDC	2,011,500	40.23
Hebei Provincial Construction Investment Co.	452,250	9.04
Fujian Investment & Development General Co. Ltd.	407,250	8.15
Jiangsu Province Investment Co.	312,375	6.25
Liaoning Energy Corporation	226,125	4.52
Dalian Municipal Construction Investment Co.	226,125	4.52
Nantong Municipal Construction & Investment Co.	67,875	1.36
Shantou Electric Power Development Co.	46,500	0.93
Subtotal	*3,750,000*	*75.00*
Class N Ordinary Shares		
Public shareholders	1,250,000	25.00
Subtotal	*1,250,000*	*25.00*
Total	5,000,000	100.00

The reorganization and the combined offering of HPI created one of the largest independent power producers in the world.

Major Events

In order to understand more clearly the details of the reorganization and public offering, the main events are summarized below:-

Oct. 1994 Reorganization with 25% of the equity ownership offered for public subscription

- A Combined Offering of RMB 5,129 million
- Use of funds: To settle borrowings of RMB 972 million and distributions to HIPDC prior to the Reorganization of RMB 433 million.
- Projected annual rate of return

  11% on equity financed Net fixed Assets

  7% on debt-financed Net Fixed Assets
- Other share holders: HIPDC and seven local governments

Oct. 1994 Nantong Power Plant Phase II Expansion Project receives State Planning Commission approval

Dec. 1994 Fuzhou Power Plant Phase II Expansion Project receives State Planning Commission approval

Jan. 1995 Joint Venture construction plan with Southern Electric International for building a new power plant to be sited in Nanjing City, Jiangsu province, China. The ownership stakes are 51.7% and 30% to HPI and SEI respectfully, with the rest going to the local governments. The project involves building two 600 MW units at a total cost of $1.2

billion. Financing is to be secured through equity investments amounting to 25% of the projected cost and commercial loans. A profit agreement with the local government is required before a final contract can be signed. It is expected that the company's 15% profit scheme approved by the Ministry of Power Industry will be accepted by Provincial authorities.

Feb. 1995 Acquisitions of Phase I and II of the Shantou coal-fired power plant will complete as soon as practicable. Provincial Power Bureau and City Government confirmed their support for the acquisition

Feb. 1995 Acquisitions of Phases I and II of the Dandong Power Plant

Mar. 1995 Report on operation in the first months

Mar. 1995 The construction of Shangan Phase II Expansion project is due for completion

Jul. 1995 The company announces the signing of a purchase agreement with a group made of US companies Westinghouse Corp. and Sargent & Lundy and U. K. equipment maker Babcock Energy to provide four sets of 350-megawatt power generating units for two power plant facilities, in Dalian and Dandong. Financing consists of 85% export credits from the U. S. and U. K. governments that carry an annual interest rate of 5.95%, with the remaining 15% consisting of international commercial loans.

Analysis

HPI's primary business is power generation. To ensure the company's income, a profitable tariff regulation must be set, which usually involves a vigorous negotiation with the government. What's more, in order to obtain positive future growth in stock price and dividends for the investors, the net income of the company's operation must increase over time. Yet, as a power plant can only generate a fixed amount of electricity, the company has only two alternatives. The first one is to adjust its tariff upward. The second one is to increase its generation capacity.

Increasing capacity means developing or acquiring new plants. Either way, extra funding is needed. HPI would have to either reinvest its profits, issue new shares, raise new debt, or do both. Therefore, the structure of the company must be attractive to both shareholders and potential lenders.

The New Tariff Setting Regulatory Policy and Its Advantages

One of the most important achievements of the HPI reorganization effort is the development of a new tariff-setting mechanism.

Old tariff structure

Prior to the reorganization, all of the five operating plants observed the tariff agreed upon between HIPDC and the government in 1986. It was fixed at the return

to equity of 4 fen[26] per kWh, which proved to be profitable at that time. Although such a tariff structure provided good returns on equity in 1986, these returns had steadily deteriorated over the years. By 1994, return on equity became little more than miserly.

One major problem with the old-tariff setting structure was its failure to address currency risks. Since the implementation of the open-door policy, the RMB has been devaluating. Thus, for HPI's listing in NYSE to be successful, the problem had to be addressed and resolved before US dollar-dominated investors would be willing to commit their investments.

Another problem with the old structure was its failure to recognize the increased demand for electricity. As a result of the shortage of supply and inflating demand, actual electricity prices in mainland China has gone up. However, the old structure failed to acknowledge the growth in demand and failed to capture the opportunity for earnings growth.

New tariff structure

To resolve the currency risk problem, the initial preference of HPI was to adjust current profit margins to make them acceptable and to link them to the USD to adjust automatically for any future RMB devaluation. However, the policy was rejected by the Ministry of Electric Power stating that any linkage of equity returns to foreign currency was unacceptable. The solution was a proposed new tariff-setting regulatory policy.

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[26] 1 fen = one Chinese cent

- An after-tax return on average net fixed assets of 15%.

The rate setting policy agreed to between the government and the company makes use of the regulations that commit purchasers of electricity to pay power rates that permit the seller to recover all operating expenses and debt service costs and to earn a profit.

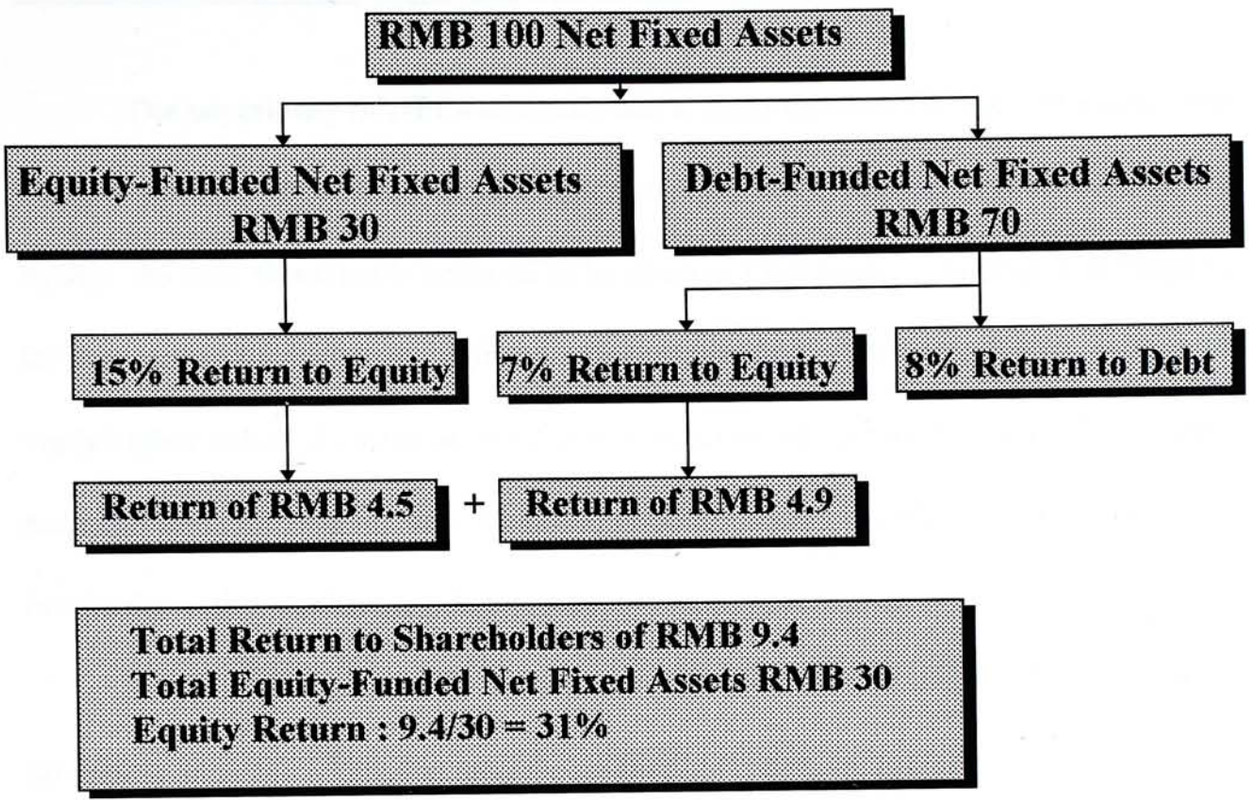
Under the Pricing Policy, the Company was promulgated to earn a blended after-tax rate of return comprised of 15% per year on equity-financed Net Fixed Assets at the planned output and a minimum of 7% per year on debt-financed Net Fixed Assets. The rate of return on debt-financed Net Fixed Assets was subject to an adjustment which deducted the weighted average interest rate on the Company's debt from the 15% rate of return, up to a maximum deduction of 8% (interest expenses in excess of 8% would be recoverable separately as operating costs), thereby yielding a minimum 7% rate of return on debt-financed Net Fixed Assets. As a consequence, the lower the interest rate, the higher would be the overall return to equity investors.

HPI expected that the power rates applicable to electricity sales in 1995 would be approved by the relevant Price Administration Bureau in the fourth quarter of 1994 and planned to phase in the allowed rate of return within four years.

Tariff rate tied into the Net Fixed Assets

The most important feature of the tariff setting policy is its direct tie into the net fixed assets. As net fixed assets can be financed by owners' equity as well as by debt, increasing the use of leverage would provide higher returns to equity. Here shows an example.

Figure 15. Effect of New Tariff Structure on ROE



The above mechanism works as follows:

⇒ Suppose NFA = 100 RMB and the debt and equity ratio is 7 to 3. According to the new tariff setting, the equity rate of return is 15% and a return of 4.5 RMB is realized. The 15% rate of return applies to the capital financed by debt. However, the interest rate is set at a maximum of 8%. Thus, the remaining 7% will be distributed to equity holders which amounts to RMB 4.9.

⇒ The realized return to the equity holders then becomes the sum of RMB 4.5 plus the RMB 4.9 remaining from the return on the debt-financed NFA. The resulting ROE is therefore 31%.

⇒ To a certain extent, the higher the debt, the higher will be the ROE.

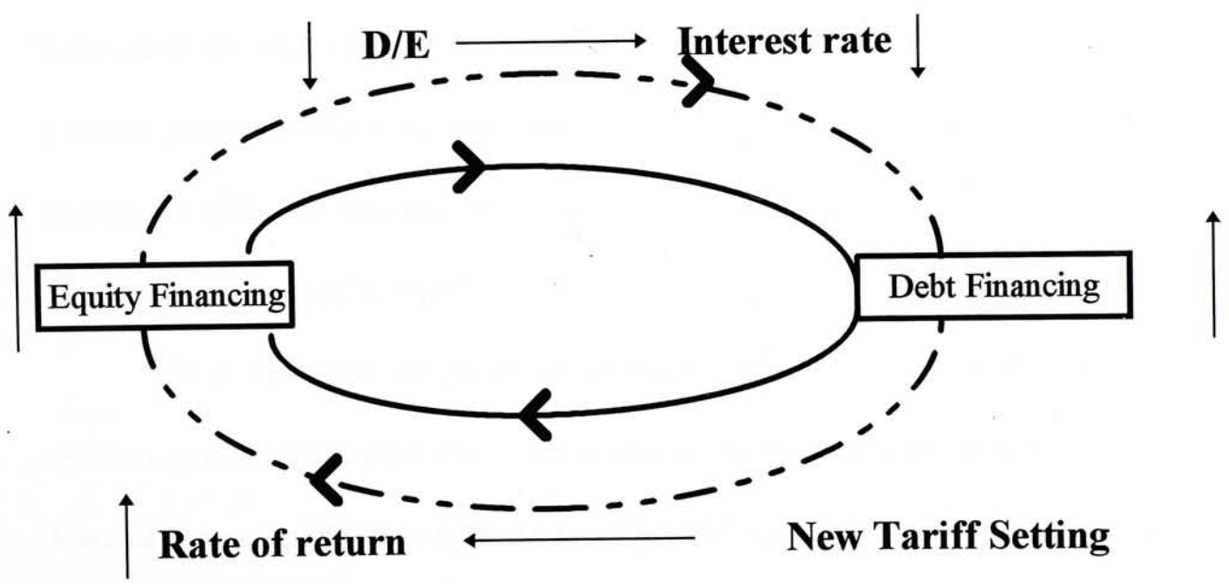
HPI is currently running a debt to equity ratio lower than 7:3. However, it is management's intention to have the company's debt to equity reach this a level.

The Result of the NFA-tied Rate Calculation - Interactive Financing

The superiority of HPI's structure lies at its interactive essence. In a corporate finance context, an optimal capital structure calls for a balance between debt and equity. As debt financing is believed to be cheaper than equity financing, it is tempting for a company to finance its capital needs through debt. However, higher debt levels imply higher risks. As a result, lenders will demand higher interest on the borrowings meaning that the cost of debt financing will be higher. HPI's structure however, breaks down this traditional relationship.

Through the new tariff's mechanism, the higher the gearing, the higher will be the equity returns. This mechanism essentially creates an interaction between equity and debt.

Figure 16. Interaction between equity and debt financing



Other features of the pricing policy include the following:

- Inclusion of construction work in progress ("CWIP") in the rate base. The use of CWIP in the rate base would help smooth earnings profits over the next four years.
- Utilizing an aggregate rate base to calculate returns on equity rather than an individual plant rate base. This eliminated the tariff variation among different power plants because of their differences in net fixed assets.
- Lengthening depreciable lives of generation assets from 10 years to 15 years. This action would allow for higher earnings over a longer period of time
- Allowing for "revaluation" of generating assets after 15 years.

A Capital Structure That Reduces Risk

HPI was established with the planned plants and projected plants. When it raises debt through open-ended pooled project financing, it pooled the operating and planned plants together to form a portfolio. In this way, it was able to effectively reduce the different risks that may otherwise be much higher.

(a) Engineering and Construction risks

For the planned and projected plants, the majority of risks is due to engineering failures, procurement problems, cost over-runs and completion delays. Under the by-laws of the company, management is authorized to use its retained earnings from the operating plants to fund the capital expenditures of projects under development or projects being planned. That means the engineering and construction risks for the new projects will be shared by the operating plants.

(b) Default risk

The cash inflows from the operating plants would reduce the default risks associated with the project - not all cash inflows are remote in the future like a 10-year zero coupon bond. Such a diversification has the advantage of a portfolio effect. If one of the plants fails to be completed and operated in time, other plants' inflows can set it off to pay for interest and loan payments. This is known as cross-collateralization of cash flow.

(c) Operation risk

Operation risk for power plant projects is attributed to material supply risks, transportation risks, off-take agreements, tariff setting regulations, electricity demand and competition. Provisions in the company's by-laws also allow the transfer of cash from profitable plants to plants that are running deficits. Such a provision significantly reduces the default risk for debts obtained to finance the initial operations.

This risk minimization is completed by the allocation of risks through the following mechanisms: the off-take agreement, i.e., new tariff setting, the construction contract and the operation contract.

(d) Expropriation Risk

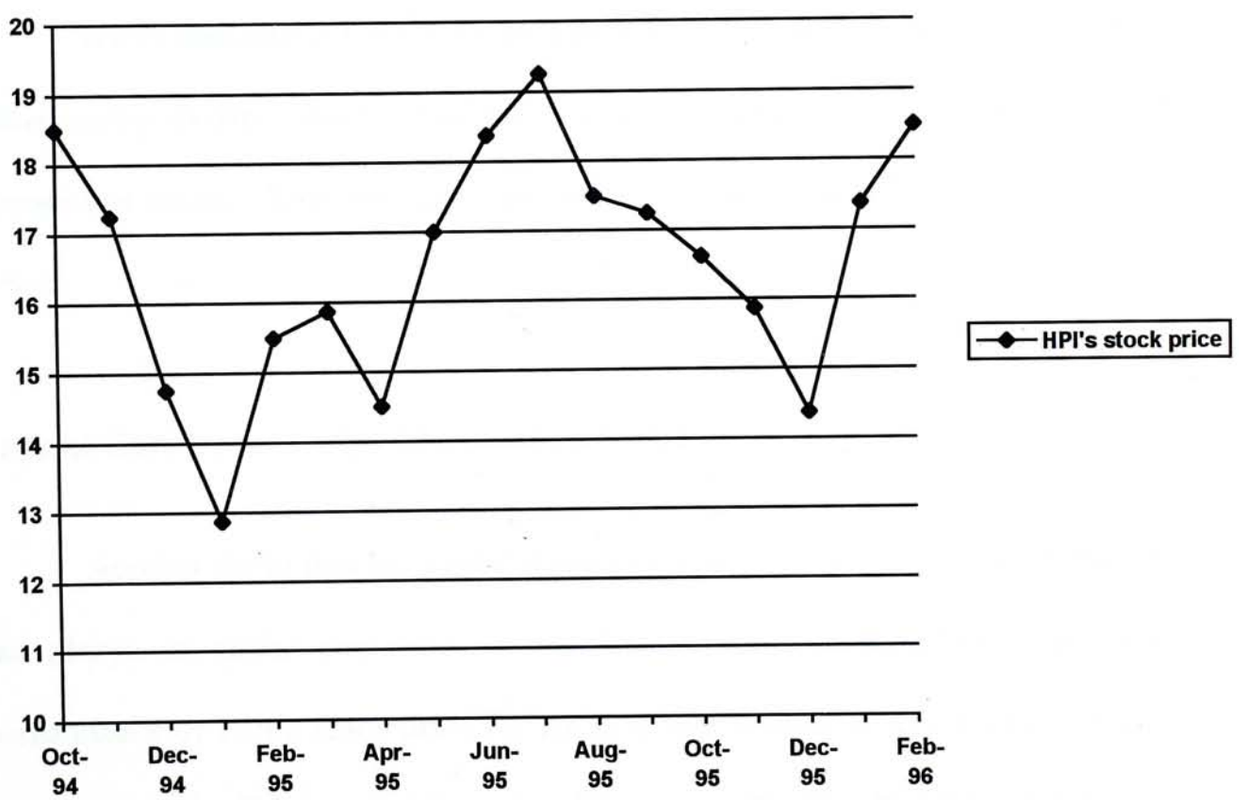
On the other hand, since more than 30% of HPI's shares are owned by the various municipalities where the plants are located and will be built, expropriate risk is significantly reduced.

We have now discussed all the main characteristics which illustrate the well-thought out sophistication and superiority of Huaneng's pooled project financing structure. We will now look at how well this structure was able to work in practice.

Reviewing the Performance of HPI

According to the Efficient Market Hypothesis, in a semi-strong efficient market, all publicly known information would be reflected in the stock price. To indirectly judge the effectiveness of HPI's financing structure and strategy, we will now review HPI's share's performance since its IPO in October 1994. The monthly stock price is plotted as follows.

Figure 17. Stock Price of HPI



As can be seen from the above graph, HPI's stock price has rollercoastered since the company's IPO.

HPI's stock price dropped immediately after the IPO, from US$20 to US$12.875, a 36% drop. Another Chinese power company listed in New York, the Shangdong Huaneng experienced the same magnitude of decline, 21%, with the first two months after its listing. Such drops reveal the market's comment that the price is too high. Therefore, what has happened? HPI's structure seemed so attractive and invincible just minutes ago. We will now look at the factors behind HPI's roller coaster stock price performance.

An Analysis of the Roller Coaster Performance of HPI's Stock Price

No Dividends Policy

While Shangdong Huaneng managed to declare a dividend for the year, HPI's stated policy declares that the company would not declare a dividend anytime in the foreseeable future. That may serve as another trigger for the decline of the share's price.

Lack of Confidence in the Chinese Government

Another factor that has casted shadows on the company's share performance is the plunge of public confidence in the Chinese Government. The disappointing performance of HPI's stock price for the first two months reflect a general lack of confidence in the Chinese government's willingness to observe the pricing policy.

When the stock price hit its bottom of $12.875, it leapt up to US$15.5 in February 1995. The rebound was a result of the company's success in obtaining approval from the government for a rate increase, from 4.15 fen to 33.4 fen per kw/h.

With this rate increase, HPI would reach a rate of return of 11 per cent (499+97/4534+878 x 100%, shown in Appendix 7) this year, as stated in the listing prospectus in September. This favorable news would stimulate its price to soar.

Environmental Factors

On March, 1995, the annual report of HPI (Appendix 8) announced and recorded a decline on Return On Equity (ROE) from 8.28%[27] to 4.10%[28] semi-annually. The lower than expected earnings was due to the heavy rainfall in some parts of China. Hydro-power output was boosted up and provincial grids were then able to substitute with cheaper power sources[29]. As a result, the stock price dipped to US$14.5.

Financing Good News

Between May and July, 1995, the stock price surged to the year's highest position of US$19.25. The surge was largely due to the announcement by the company that it had been able to obtain financing for the two generating units of Dalian and Dandong at lower interest charges. Investors could thus expect a higher rate of equity return.

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[27] ROE of Jan 94'- June 94' = RMB 433,376,000/ RMB 5,234,893,000 = 8.28%

[28] ROE of July 94'- Dec. 94' = RMB 443,527,000/ RMB 10,807,083,000 = 4.10%

[29] 'Huaneng Power Takes a Hit From Its Own Underwriter', The Wall Street Journal Europe, 11/08/95, Sara Webb, Pg. 22

Downward Revisions in Earnings Forecasts

Profit taking pushed the stock down after the share reached its US$19 peak. Rumors saying that Lehman Brothers would lower its forecast for HPI's earnings pushed the price further downward. These rumors was later confirmed by a Lehman's report adjusting the company's EPS in 1995 from US$1.45 to US$1.17 and adjusting its recommendation to "Buy." Nevertheless, the investment bank explained that the reduction was effectively a 'one-off' short-term adjustment and HPI's long-term development plan and earnings-growth potential would not be affected.

The stock price reacted by plunging back to its low in March. In December, it reached US$14.375. The prolonged negotiation with the Chinese government over the new tariff setting greatly contributed to the gloomy sentiment.

Figure 18. Valuation Table of HPI and Other Companies (20 November 1995)

Company	Share price (US$)	ROE FY95 (%)	5 yr EPS growth (%)
CEPA	13.20	5.4	27.1
HPI	14.50	10.2	28.0
S. Huaneng	6.825	10.0	8.5
Sector average		8.0	21.2

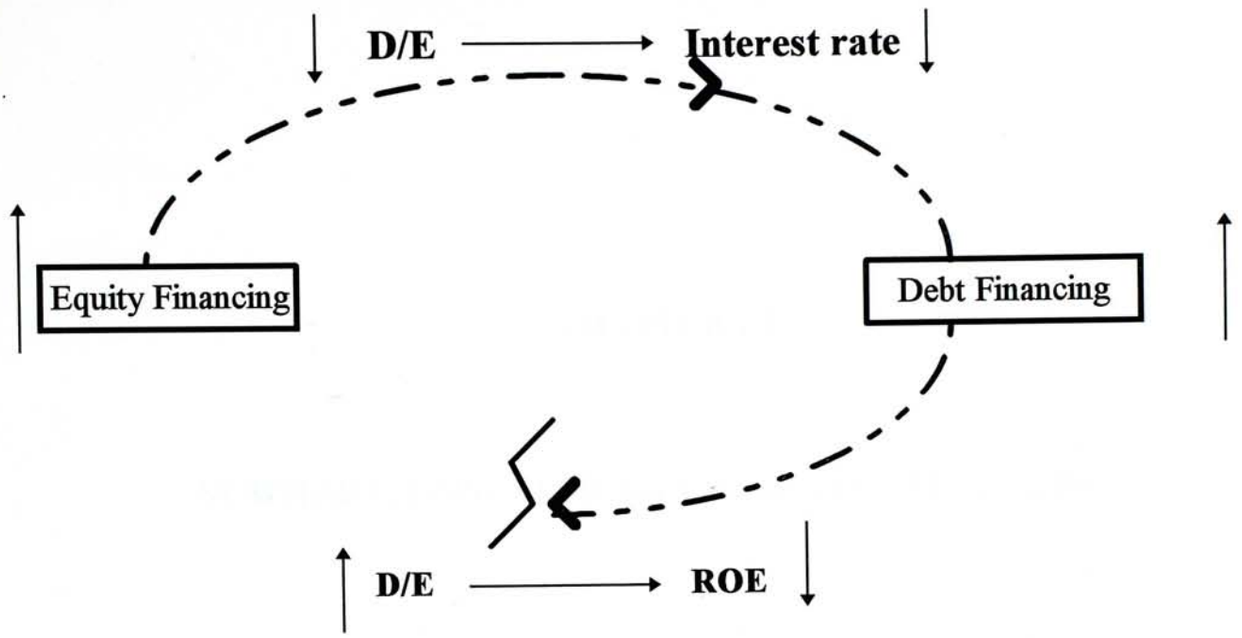
(Source: Lehman Brothers)

Conclusions

On the surface, HPI's project finance structure is one which boasts superiority in that it can dispel the traditional relationship between project debt and project equity financing. The design covers an almost exhaustive list of project-related risks and would even be able to grant exceptionally favourable returns to equity even in the case of RMB devaluation. However, ironically, the structure's superiority is also the source of its failure. While the tying of the company's project finance structure to the new tariff setting policy rewarded a high-leverage structure and provided an interactive financing mechanism, by relying too highly on the new tariff setting policy in a land where the promises of government lack enforcement, HPI's clever project design proved to be clever, but not clever enough.

The nonfulfillment of the new tariff proved to be the "Aquille's heel" in the company's sophisticated financing structure. According to the interactive financing model (see Figure 19 below), if the new tariff setting cannot be achieved, additional debt financing would only hinder equity financing. As a result no interactive mechanism can be achieved and HPI's already high gearing ratio would result in a plunge in the stock price to reflect investors' change of heart about the company's future prospects.

Figure 19. Interrupted financing model



Concluding Words

Through the Huaneng Power International case, we can see that structures attractive and truly invincible on paper may prove self-defeating in actual practice. This is because in Asia, unlike the west, promises made by governments and government agencies are scarcely enforceable, and to base a grand structure on such things as contracted promises, would be the equivalent of building a fortress on the whims of a moment. For this reason, in emerging economies such as China, it is necessary to step out of the intricate webs within the individual project finance frameworks and adapt one's practices to the complexities of the operating environment.

CHAPTER III

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Project finance in Asia is a riddle within itself. On the one hand, we are told that it will be the major force to emancipate the last set of nations from their forced isolation of backwardness and thus, they will welcome the adventurers onto their impoverished sovereign lands, while on the other hand, all the conditions project investors face seem to indicate that nothing could be further than the truth.

When investors try to bring with them their preconceived notions of how project finance is done in the west, they are headed for disaster. This is because true project financing does not exist in Asia. Because the credit ratings of the various entities implicit in the project financing equation (e.g., the offtaker, the fuel supplier, the operator, etc.) in many of the emerging market economies lie ambiguous and open to interpretation, the singular concept of allocating project risks to the various parties involved take the nature of playing a game of roulette. Without a proper allocation of risk to ensure the ultimate feasibility of the project, no lender would be willing to lend funds solely on the basis of a project's future cash flows. For this reason, in Asia,

project finance in its purest sense, that is pure non-recourse debt financing, does not exist, and in fact, even limited recourse debt financing gives a cause for celebration. As a result, in Asia, even though debt financing is still provided on the basis and feasibility of a project's future cash flows, a number of support mechanisms such as sovereign guarantees and counter-guarantees providing windows to international commercial debt fuding need to accompany these former assurances.

However, these "windows to funds" are becoming narrower and narrower due to developing countries' aversiveness to sovereign debt. As a result, investors are beginning to have to consider other structures, structures which in the west would seem to be severely unattractive and limiting. Amongst these new structures are structures which envision full recourse debt financing with the provision of direct corporate guarantees and structures where the greater portion of financing consists of equity provided directly by the developers themselves.

On the other hand, other infrastructure investors are trying their hands at creating increasingly sophisticated structures to deal with the greater and more complicated sets of risks inherent in Asia such as currency risks and foreign exchange convertibility. The result is a set of superior structures which seem invincible and attractive on paper.

However, despite these two divergent paths, the conclusions gained from their consequences are the same. In Asia, there is no one optimal project financing structure, but there is one guiding principle. The principle is simply that the optimal project financing structure for a project is the one which comes up with a perfect match of investors'/sponsors' needs, resources, and purposes with the demands of the operating environment. Therefore, in the case of New World Development which took

the first path choosing a project structure which seemed strangely suboptimal by the fact that it was composed primarily of equity with both limited losses and profit potentials, we find that the structure is "optimal" since it was fitting to the company's purposes, and just as importantly, fitting to the complex demands of the China operating environment. And therefore, in the other case, that of Huaneng Power International which took the latter path, we find, even though the structure is superior or "optimal" in the absolute sense, when immersed into the complexities of an unenforceable regulatory framework, the structure proves self-defeating since it did not take into account the undependable promises of a fickle government. In summary, success in project financing in Asia is not dependent on the sophistication of the individual project structures, and in the same reasoning, nor is failure the result of an individually suboptimal structure. To succeed, financiers must adapt project structures to the demands of Asia while keeping an overall consistency with the developer's overall infrastructure development strategy.

Appendix 1 List of NWIL Projects

	Market Valuation (in $ million)
EXISTING PROJECTS	
PRC	
Guangdong Province	
Guangzhou City Northern Ring Road	1,220
Shenzhen-Huizhou Expressway (Huizhou Section)	232
Guangzhou-Zhuhai East-line Expressway	79
Roadway No. 324 (Gaoyao Section) in Zhaoqing	148
Roadway No. 321 (Fengkai Section) in Zhaoqing	208
Roadway No. 1964 (Zhaojiang Section) in Zhaoqing	313
Roadway No. 321 (Deqing Section) in Zhaoqing	251
Roadway No. 1960 (Guangning Section) in Zhaoqing	135
Zhujiang Power Station - Phase I	783
Wuhan	
Wuhan Bridge Development	935
Wuhan Airport Expressway	434
Hong Kong	
Sea-Land Orient Terminals Limited	1,203
Asia Terminals Limited	1,530
Tate's Cairn Tunnel Company Limited	242
PROVISIONAL PROJECTS	
Zhujiang Power Station - Phase II	142
	7,865

Project Name	Description	Total Cost (Rmb million)	Group's Attributable Interest	Group's Share of Profits	Actual or Target Date of Operation	Project or JV Expiry Date	Project Company and Partners	Signing Date of JV Contract
PRC Projects held under NWIL								
Road Projects								
Guangzhou City Northern Ring Road *(Guangdong)*	22 km toll expressway	1,502	32.80%	40%	Jan-94	a 33 year JV ending in 2023	Guangzhou Northring Freeway Co Ltd., a Sino-foreign cooperative JV: Guangzhou Freeway Company (GFC) and True Hope Investment Limited of NWIL	Nov. 29, 1990 in PRC, True Hope Aug. 1, 1989 in HK
Shenzhen-Huizhou Expressway (Huizhou Section) *(Guangdong)*	35 km toll expressway	374	37.5% in the joint venture Huixin?, 24.54% in project	34.05% (indirect interest)	Jun-93	a 30 year JV ending in 2021	Huishen (Yantian) Expressway Huizhou Co., Ltd., a domestic JV: Huizhou City Road and Bridge Development Company (HRBD) (66.66%) (of which NWIL owns 50%) and Guangdong Provincial Freeway Company (GPFC) (33.33%)	April 15, 1991 in PRC, Huixin JV - Jan. 11, 1993 in PRC
Guangzhou-Zhuhai East-line Expressway *(Guangdong)*	57 km for Phase I (129 km toll expressway)	4,363 (Phase I)	20%	20% (indirect interest)	1999 (Phase I)	Up to 2028	Guangzhou Zhuhai E. Expressway Co. Ltd., a Sino-foreign coop JV: Guangdong Provincial Freeway (25%), Zhuhai City Expressway(20%), Panyu City Bridge & Highway Constructn (5%), Jiangmen Transport Project (5%), New World-Guangdong Highway Investmnts (40%)	May 13, 1993, PRC, New World-Guangdong - May 13, 1993 in PRC

Project Name	Description	Total Cost (Rmb million)	Group's Attributable Interest	Group's Share of Profits	Actual or Target Date of Operation	Project or JV Expiry Date	Project Company and Partners	Signing Date of JV Contract
Roadway No. 324 (Gaoyao Section) in Zhaoqing *(Guangdong)*	24.2 km toll road	159	24%	40%	Feb-94	a 22 year JV ending in 2015	Zhaoqing Xin Gao Highways Co., Ltd., a Sino-foreign cooperative JV: Zhaoqing Highway Development Ltd. (33%), Gaoyao Highway Development Co. (15%), NWIL (52%)	Spet. 9, 1993 in PRC,
Roadway No. 321 (Fengkai Section) in Zhaoqing *(Guangdong)*	41.66 km toll road	283	38.25%	45%	Mar-95	a JV of 25 years ending in 2019	Zhaoqing Xin Feng Freeway Co. Ltd., a Sino-foreign cooperative joint venture formed by Guangdong Highway Bridge Construction Development Company (30.85%), Fengkai Highway Development Ci, (5.23%), Zhaoqing Highway Development Ltd. (3.92%), NWIL (60%)	May 16, 1994, PRC
Roadway No. 1964 (Zhaojiang Section) in Zhaoqing *(Guangdong)*	23.775 km toll road or 32 km?	204	60%	70%	Dec-95	a 25 year JV ending in 2019	Guangzhou Xinzhao Gao Freeway Co. Ltd., a Sino-foreign co-operative JV formed by Gaoyao Highway Development Company (10%), Zhaoqing Highway Development Ltd. (10%), NWIL (80%)	June 17, 1994 in PRC

Project Name	Description	Total Cost (Rmb million)	Group's Attributable Interest	Group's Share of Profits	Actual or Target Date of Operation	Project or JV Expiry Date	Project Company and Partners	Signing Date of JV Contract
Roadway No. 321 (Deqing Section) in Zhaoqing *(Guangdong)*	79.2 km toll road	524	38.20%	45%	Dec-95	a JV of 25 years ending in 2020	Zhaoqing Xinde Highways Co. Ltd., a Sino-foreign cooperative JV: Guangdong Highway-Bridge Construction Development Co. (30%), Guangdong Province Deqing Highway Development Co. (13%), Zhaoqing Highway Development Ltd. (2%), NWIL (55%)	Jan. 18, 1995 in PRC
Roadway No. 1960 (Guangning Section) in Zhaoqing *(Guangdong)*	60 km toll road	270	60%	55%	Jul-96	a 25 year JV ending in 2020	Zhaoqing Xinning Highways Co. Ltd., a Sino-foreign cooperative JV: Guangdong Highway-Bridge Construction Development Co. (12.59%), Guangning Highway Development Co. (9.63%), Zhaoqing Highway Development Ltd. (17.78%), NWIL (60%)	Aug. 1995 in PRC
Wuhan Bridge Development *(Wuhan)*	3 toll bridges	1,792	48.86%	48.86%	Jun-95	N/A. The investment is made in a joint stock limited company which has no defined term.	Wuhan Bridge Construction Co., Ltd. a domestic joint stock limited co.: Wuhan Bridge Construction Co. (50%), Wuhan City Jiang Han Bridge Ec. and Dev. Co. (.46%), Wuhan City Chang Jiang Highway Bridge Removal and Reconstructn Dev. Co. (68%), NWDC (48.86%)	Oct. 1, 1992 in PRC

Project Name	Description	Total Cost (Rmb million)	Group's Attributable Interest	Group's Share of Profits	Actual or Target Date of Operation	Project or JV Expiry Date	Project Company and Partners	Signing Date of JV Contract
Wuhan Airport Expressway *(Wuhan)*	18 km toll expressway	573	34%	40%	Apr-95	expected to end in 2025, is a JV of a maximum period of 30 years	Wuhan Airport Road Dev. Corp. Ltd., a Sino-foreign cooperative JV: NWIL (66.67%), Wuhan Airport Comprehensive Development Corporation (WACD) (33.33%),	Feb. 17, 1993 in PRC
Power Projects								
Zhujiang Power Station - Phase I *(Guangdong)*	Two 300 MW coal-fired generators	2,700	42.50%	50%	Jan-94	a 25 year JV ending in 2017	Guangzhou Pearl River Power Co. Ltd., a Sino-foreign equity JV: Try Force Ltd. of wholly owned subsidiary of NWIL (50%), Guangzhou Development Group Corporation (GDGC) (50%)	June 1, 1992 in PRC, Try Force Ltd. - Jan. 31, 1989 in Hong Kong
Provisional Projects								
Zhujiang Power Station - Phase II) *(Guangdong)*	Two 300 MW coal-fired generators	3,500	25%	25%	1997	a 25-Year JV ending in 2021	A proposed JV: Guangzhou Electric Power Dev. Co., Ltd.(60%), Yue Xiu Enterprise (Holdings) Ltd.(10%), Guangzhou Development Group Corporation (GDGC) (5%), NWIL (25%)	Preliminary JV agreement 1993, Supplemental agreement in May 1995

Project Name	Description	Total Cost (Rmb million)	Group's Attributable Interest	Group's Share of Profits	Actual or Target Date of Operation	Project or JV Expiry Date	Project Company and Partners	Signing Date of JV Contract
PRC Projects Held Under New World Dev.								
Airport Projects								
Wuhan Tianhe Airport	Airport	N/A	N/A	33.30%	Apr-95	N/A	A Proposed JV with Wuhan Airport Comprehensive Development Corporation (WACD)	N/A
Power Projects								
Qingyuan Qiaoyuan Power Plant *(Qingyuan, Guangdong)*	Eight 6.35 MW Diesal Power Plant	N/A	21.25%	10-16%	N/A	N/A	Qingyuan Qioyuan Power Plant Co. Ltd.	N/A
Dalian Xiang Hai Thermal Power Plant *(Dalian)*	Two 25 MW Coal-fired Thermal Power Plant	N/A	70%?	70%	N/A	N/A	N/A	N/A
Hong Kong Projects Held Under NWIL								

Project Name	Description	Total Cost (Rmb million)	Group's Attributable Interest	Group's Share of Profits	Actual or Target Date of Operation	Project or JV Expiry Date	Project Company and Partners	Signing Date of JV Contract
Cargo Handling Projects								
Sea-Land Orient Terminals Limited (SLOT)	Container terminal	HK$526 million	13.84%	13.84% (indirect interest through Ready City Limited which holds 33.34% of SLOT) (SLO: 66.66%)	1973	2047	Ready City JV: NWIL (41.5%), Long Brain Ltd. (35.5%), Hong Leong Intl (HK) Ltd. (5%), JF Asia Select Ltd. (5%), Kopola Investment Co. Ltd. (3%), Standard Chartered Asia Dev. Capital Ltd. (1%), Sunnet Investment Pte. Ltd. (9%)	SLOT - Jan. 22, 1991 in HK, Ready City Ltd. - Aug. 10, 1990, Keen Sales Ltd. May 28, 1991, HK

Project Name	Description	Total Cost (Rmb million)	Group's Attributable Interest	Group's Share of Profits	Actual or Target Date of Operation	Project or JV Expiry Date	Project Company and Partners	Signing Date of JV Contract
Asia Terminals Limited (ATL)	Cargo handling and storage facility	HK$3,651 million	45.92%	45.92% (includes a 6.92% indirect interest held through the Group's interest in Sea-Land Orient Terminals Limited	February 1987 (Phase I) November 1994 (Phase V)	2047	ATL JV: NWIL (39%), SLOT (50%, Central Development Ltd. (10%), R.J. Reynolds Tobacco Company (HK) Ltd. (1%)	Dec. 31, 1981 in Hong Kong
Road Projects								
Tate's Cairn Tunnel Company Limited (TCT)	4 km toll tunnel	HK$1,964 million	27.50%	27.50%	Jun-91	2018	TCT JV: NWIL (27.5%), China Resources (Holdings) Co. Ltd. (37.5%), Nishimatsu Construction Company Ltd. (20%), Itochu Corporation (5%), Central Development Ltd. (10%)	Sept. 12, 1986 in Hong Kong

Appendix 3 NWIL Projects Financing

Project Name	Total Cost and Total Cash Expenditures Required where applicable	% of External Project Debt Financing	% of Equity Funding (Capital Contr. and Shareholders' Loans)	% of Total Cost Equity Funded by New World	% of Other Additional Financing	New World's Profit Sharing Ratio
Guangzhou City Northern Ring Road, Guangdong	RMB1,502 million	54.597%	45.403%	26.461%	N/A	40%
	RMB1,217.5 million	67.355%	32.645%	32.645%	N/A	40%
Shenzhen-Huizhou Expressway (Huizhou Section), Guangzhou	RMB 374 million	N/A	N/A	N/A	Revenues from Operations of Huizhou	34.05%
Guangzhou-Zhuhai East-line Expressway, Guangdong	RMB4,360 million	0.000%	100.000%	20.000%	N/A	20%
Roadway No. 324 (Gaoyao Section) in Zhaoqing, Guangdong	RMB 159 million	0.000%	100.000%	52.013%	N/A	40%
	RMB139 million	0.000%	100.000%	59.496%	N/A	40%
Roadway No. 321 (Fengkai Section) in Zhaoqing Guangdong	RMB 283 million	0.000%	100.000%	60.000%	N/A	45%
	RMB 278 million	0.000%	100.000%	61.08%	N/A	45%
Roadway No. 1964 (Zhaojiang Section) in Zhaoqing, Guangdong	RMB 204 million	0.000%	100.000%	74.5098%	N/A	70%
	RMB 197 million	0.000%	100.000%	77.157%	N/A	70%
Roadway No. 321 (Deqing Section) in Zhaoqing, Guangdong	RMB 524,067,000	0.000%	100.000%	55.000%	N/A	45%
	RMB 484,467,000	0.000%	100.000%	59.496%	N/A	45%
Roadway No. 1960 (Guangning Section) in Zhaoqing,	RMB 270 million	0.000%	100.000%	60.000%	N/A	55%
	RMB 228 million	0.000%	100.000%	71.053%	N/A	55%

Guangdong						
Wuhan Bridge Development, Wuhan	RMB1,792 million RMB 885.5 million	0.000% 0.000%	98.575% 97.019%	48.045% 97.12%	Revenues = 1.425% Revenues = 2.981%	48.86% 48.86%
Wuhan Airport Expressway, Wuhan	RMB 573 million	0.000%	100.000%	92.147%	N/A	40%
Zhujiang Power Station - Phase I, Guangdong	RMB2,700 million	58.69%	41.309%	12.593%	N/A	25%
Sea-Land Orient Terminals Ltd.	HKD$526 million	N/A	N/A	N/A	N/A	13.84%
Asia Terminals Ltd. (ATL)	HKD$3,651 million	N/A	N/A	N/A	N/A	45.92%
Tate's Cairn Tunnel Company Ltd.	HKD1,964 million	78.9206%	21.0794%	N/A	N/A	27.5%
Zhujiang Power Station - Phase II, Guangdong	RMB3,500 million	N/A	N/A	N/A	N/A	25%

Appendix 4 Details of the Project Financing Arrangements / Plans for the Various Projects

1. Guangzhou City Northern Ring Road:
Toll Road - Operating Stage
Cost: RMB 1,502 million

External Project Debt Financing (US$97 million)	**54.60%**	**RMB820,049,393.80**
a) An international syndicated loan facility guaranteed by Hong Kong Island Development Ltd., a wholly-owned subsidiary of New World Development		
Project Equity Financing:	**45.40%**	**RMB681,950,606.20**
a) Capital Contributions 29.72%		RMB446,449,241.80
i) NWIL	US$19.255 million =RMB161,949,241.80	
ii) GFC	RMB284,500,000	
b) Shareholders' Loans		RMB235,501,364.40
i) NWIL	US$28 million =RMB235,501,364.40	
15.58%		

Total Amount Equity Funded by NWIL **RMB397,450,606.20**
26.46%

2. Shenzhen-Huizhou Expressway (Huizhou Section) (Guangzhou)
Toll-road - Operating Stage
Cost: RMB 374 million

N/A

3. Guangzhou-Zhuhai East-line Expressway - Phase I, Guangdong Toll Road - Construction Stage
Cost: RMB 4,360,000,000

External Project Debt Financing	**RMB 0**	**0.00%**	
Project Equity Financing	**RMB 4,360 million**	**100.00%**	
a) Shareholders' Loans	RMB3,780 million		86.70%
i) New World through New World Guangdong (20%)	RMB 756 million		
ii) Guangdong Development Holdings through New World Guangdong (20%)	RMB 756 million		
iii) Guangdong Provincial Freeway Company (25%)	RMB 945 million		
iv) Zhuhai City Expressway Company (20%)	RMB 756 million		
v) Panyu City Bridge Administration Company (5%)	RMB 189 million		
vi) Zhongshan City Bridge and Highway Construction Co. (5%)	RMB 189 million		
vii) Jiangmen Transport Project Company (5%)	RMB 189 million		
b) Capital Contributions	RMB 580 million		13.30%
i) New World Through New World Guangdong 20%)	RMB 116 million		
ii) Guangdong Development (Holdings) Ltd. through New World Guangdong (20%)	RMB 116 million		
iii) Guangdong Provincial Freeway Company (25%)	RMB 145 million		
iv) Zhuhai City Expressway Company (20%)	RMB 116 million		
v) Panyu City Bridge Administration Company (5%)	RMB 29 million		
vi) Zhongshan City Bridge and Highway Construction Co. (5%)	RMB 29 million		
vii) Jiangmen Transport Project Company (5%)	RMB 29 million		

Total Amount Equity Funded by NWIL **RMB 872 million** **20.00%**

4. Roadway No. 324 (Gaoyao Section)
Toll Road - Operating Stage
Total Cost: RMB 159 million

Project Debt Financing	**RMB 0**	
Project Equity Financing	**RMB 159**	**100.00%**
a) Shareholders' Loans	RMB 105 million	66.04%
i) NWIL (52%)	RMB 54.6 million	
ii) Zhaoqing Highway Development Ltd. (33%)	RMB 34.65 million	
iii) Gaoyao Highway Development Company (15%)	RMB 15.75 million	
b) Capital Contributions	RMB 54 million	33.96%
i) NWIL (52%)	RMB 28.08 million	
ii) Zhaoqing Highway Development Ltd. (33%)	RMB 17.82million	
iii) Gaoyao Highway Development Company (15%)	RMB 8.10 million	

Total Amount Equity Funded by NWIL **RMB 82.68million** **52.00%**

5. Roadway No. 321 (Fengkai Section) in Zhaoqing, Guangdong
Toll Road: Operating Stage
Total Cost: RMB 283 million

Project Debt Financing	**RMB 0**	**0.00%**
Project Equity Financing	**RMB 283 million**	**100.00%**
a) Shareholders' Loans	RMB 189 million	
i) NWIL (60%)	RMB 113.4 million	
ii) Guangdong Highway-Bridge Construction Development Co. (30.85%)	RMB 58.3065 million	
iii) Fengkai Highway Development Company (5.23%)	RMB 9.8847 million	
iv) Zhaoqing Highway Development Ltd. (3.92%)	RMB 7.4088 million	
b) Capital Contributions	RMB 94 million	
i) NWIL (60%)	RMB 56.4 million	
ii) Guangdong Highway-Bridge Construction Development Co. (30.85%)	RMB 28.999 million	

iii) Fengkai Highway Development Company (5.23%)	RMB 4.9162 million
iv) Zhaoqing Highway Development Ltd. (3.92%)	RMB 3.6848 million

Total Amount Equity Funded by NWIL **RMB 169.8 million** **60.00%**

6. Roadway No. 1964 (Zhaojiang Section) in Zhaoqing, Guangdong
Toll Road: Operating Stage
Total Cost: RMB 204 million

Project Debt Financing	**RMB 0**	**0.00%**
Project Equity Financing	**RMB 204 million**	**100.00%**
a) Shareholders' Loans	RMB 124 million	60.78%
i) NWIL (80%)	RMB 88 million	
ii) Gaoyao Highway Development Company (10%)	RMB 18 million	
iii) Zhaoqing Highway Development Ltd. (10%)	RMB 18 million	
b) Capital Contributions	RMB 80 million	39.22%
i) NWIL (80%)	RMB 64 million	
ii) Gaoyao Highway Development Company (10%)	RMB 8 million	
iii) Zhaoqing Highway Development Ltd. (10%)	RMB 8 million	

Total Amount Equity Funded by NWIL **RMB 152 million** **74.51%**

7. Roadway No. 321 (Deqing Section) in Zhaoqing, Guangdong
Toll Road: Operating Stage
Total Cost: RMB 524,067,000

Project Debt Financing	RMB 0	0.00%
Project Equity Financing	RMB 524,067,000	100.00%
a) Shareholders' Loans	RMB 358.2 million	68.35%
i) NWIL (55%)	RMB 197.01 million	
ii) Guangdong Highway-Bridge Construction Development Company (30%)	107.46 million	
iii) Guangdong Province Deqing Highway Development Company (13%)	46.566 million	
iv) Zhaoqing Highway Development	7.164 million	

Ltd. (2%)		
b) Capital Contributions	RMB 165,867,000	31.64996%
i) NWIL (55%)	RMB 91,226,850	
ii) Guangdong Highway-Bridge Construction Development Company (30%)	RMB 49,760,100	
iii) Guangdong Province Deqing Highway Development Company (13%)	RMB 21,562,710	
iv) Zhaoqing Highway Development Ltd. (2%)	RMB 3,317,340	

Total Amount Equity Funded by NWIL **RMB 288,236,850** **55.00%**

8. Roadway No. 1960 (Guangning Section) in Zhaoqing, Guangdong Toll Road - Construction Stage
Total Cost: RMB 270 million

Project Debt Financing 0.00%	**RMB 0**	
Project Equity Financing	**RMB 270 million**	**100.00%**
a) Shareholders' Loans	RMB 180 million	
i) NWIL (60%)	RMB 72 million	
ii) Guangdong Highway-Bridge Construction Development Company (12.59%)	RMB 22.662 million	
iii) Guangning Highway Development Co. (9.63%)	RMB 17.334 million	
iv) Zhaoqing Highway Development Ltd. (17.78%)	RMB 32.004 million	
b) Capital Contributions	RMB 90 million	
i) NWIL (60%)	RMB 54 million	
ii) Guangdong Highway-Bridge Construction Development Company (12.59%)	RMB 11.331million	
iii) Guangning Highway Development Co. (9.63%)	RMB 8.667 million	
iv) Zhaoqing Highway Development Ltd. (17.78%)	RMB 16.002 million	

Total Amount Equity Funded by NWIL **RMB 162 million** **60.00%**

9. Wuhan Bridge Development, Wuhan
Toll Road - Operating Stage
Total Cost: 1,790 million

Project Debt Financing	**RMB 0**	**100.00%**
Project Equity Financing	**RMB1,764.5 million**	**98.58%**
a) Capital Contributions	RMB1,764.5 million	98.58%
i) NWIL (48.86%)	RMB 860 million	
ii) Wuhan Bridge Construction Company (50%)	RMB 884.337 million	
iii) Wuhan City Jiang Han Bridge Economic and Development Company (0.46%)	RMB 8.136 million	
iv) Wuhan City Chang Jiang Highway Bridge Removal and Reconstruction Development Company (0.68%)	RMB 12.027 million	
Other Financing:	**RMB 25.5 million**	**1.42%**
a) Revenues	RMB 25.5 million	1.42%

Total Amount Equity Funded by NWIL **RMB 860 million** **48.04%**

10. Wuhan Airport Expressway, Wuhan
Toll Road - Operating Stage
Total Cost: RMB 573 million

Project Debt Financing	**RMB 0**	**0.00%**
Project Equity Financing	**RMB 573 million**	**100.00%**
a) Shareholders' Loans	RMB 513 million	89.53 %
i) NWIL (66.67%)	US$60 million = RMB 488 million	
ii) WACD (33.33%)	RMB 25 million	
b) Capital Contributions	RMB 60 million	10.47%
i) NWIL (66.67%)	RMB 40 million	
ii) WACD (33.33%)	RMB 20 million	

Total Amount Equity Funded by NWIL **RMB 528 million** **2.15%**

11. Zhujiang Power Station - Phase I
Power Plant - Operation Stage
Total Cost: RMB2,700 million

Project Debt Financing	**RMB1,584.66 million**	**8.69%**
a) Syndicated Loan	US$140 million	
b) Asian Development Bank (ADB) Loan	US$ 50 million	
Project Equity Financing	**RMB1115.34 million**	**1.31%**
a) Shareholders' Loans	RMB 435.34 million	
i) GDGC (50%)	RMB 435.34 million	
b) Capital Contributions	RMB 420 million	
I) New World through Try Force (50%)	RMB 210 million	
ii) GDGC (50%)	RMB 210 million	
Other Financing	**RMB 260 million**	**9.63%**
a) Additional Shareholders' Loans	RMB 260 million	9.63%
I) New World through Try Force (50%)	RMB 130 million	
ii) GDGC (50%)	RMB 130 million	

Total Amount Equity Funded by NWIL **RMB 340 million** **12.59%**

Appendix 5 Projects Joint Venture Contracts (NWIL)

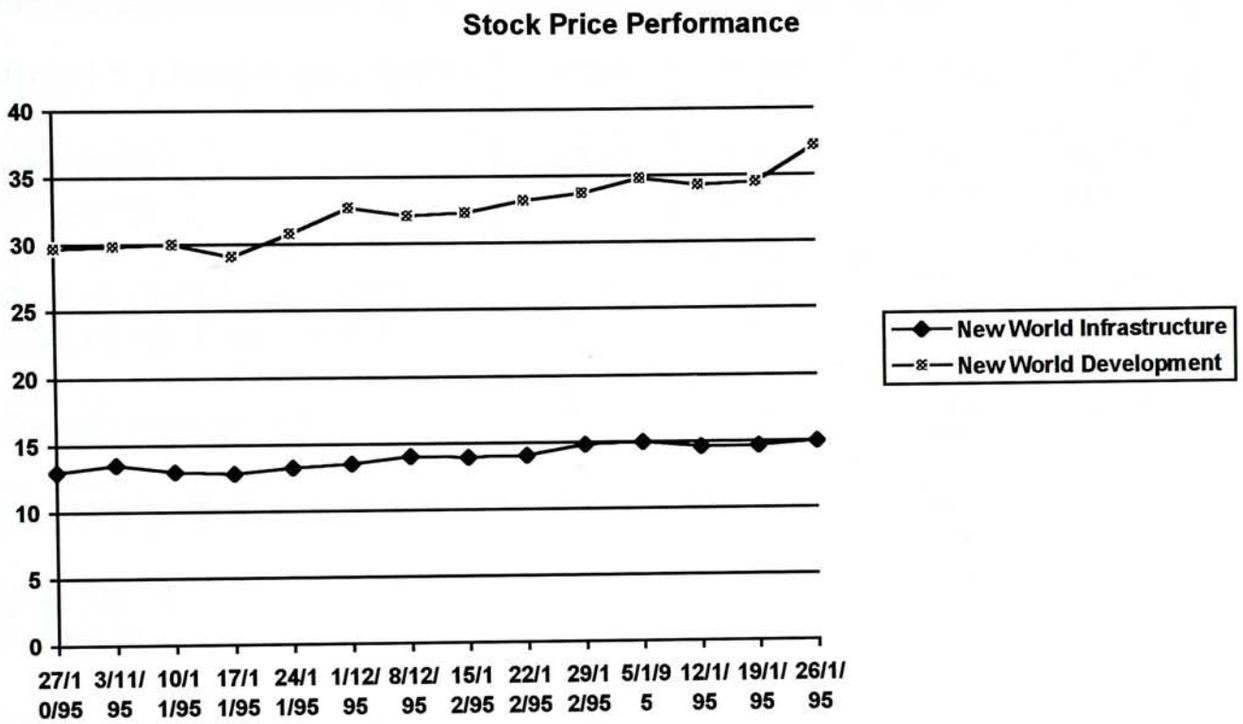
1. Guangzhou Northern Ring Road: The extension of the joint venture term will be on the basis of an extension of five months for every Rmb 10 million in currency exchange losses suffered by the Group

2. Shenzhen-Huizhou Expressway (Huizhou Section) : The Huixin joint venture contract further provides that its term can be extended subject to relevant PRC approvals if (i) there is an economic loss due to force majeure; (ii) construction costs exceed the original estimate of Rmb270 million by more than 10%, or (iii), there is a devaluation of the Renminbi by more than 10% below the rate of US$1 = Rmb6.6. If (i) or (ii), the extension period will be determined by the Board of directors, and if (iii), will be based on the changes in the exchange rate.

3. Guangzhou-Zhuhai East-line Expressway: the joint venture contract provides that the board of directors, subject to the appropriate governmental authorities' approval, may extend the term of the joint venture by: (i) one year for every Rmb320 million cost overrun in excess of the original estimate of Rmb5.8 billion of all the three phases of the East-line Expressway if the overrun exceeds the estimate by 5% or more, (ii) one year for each additional year required to repay the joint venture partners' total contribution beyond the 12th year after the Opening Date, and (iii) if the joint venture is unable to maintain an 18% net annual return for each joint venture partner.

4. Wuhan Airport Expressway: The JV contract provides that subject to approval from relevant PRC authorities the 20 year Period may be extended if construction costs exceed the original estimate of RMB490 million or the Group's average annual after tax return over the life of the contract period is below 18%.

Appendix 6 Stock Performance New World & NWIL



Appendix 7 Forecast Allowed Returns for HPI (RMB Millions)

Year to Dec. 31	1995E	1996E	1997E	1998E
Adjusted Net Fixed Assets (ANFA)	9,068	10,206	12,436	20,777
Equity funding	4,534	3,368	4,104	6,856
Debt funding	4,534	6,838	8,332	13,921
Return on equity funded ANFA	499	404	575	1,028
Return on debt funded ANFA	317	479	583	974
Allowed return on ANFA	**816**	**883**	**1,158**	**2,002**
Accumulated CWIP	4,880	7,865	12,649	10,339
Equity funding	878	2,360	3,795	3,102
Debt funding	4,002	5,505	8,854	7,237
Return on equity funded CWIP	97	283	531	465
Return on debt funded CWIP	280	385	620	507
Allowed return on CWIP	**377**	**668**	**1,151**	**972**
Total allowed return	**1,193**	**1,551**	**2,309**	**2,975**
Growth rate	39.5%	30.1%	48.8%	28.8%

(Source: Lehman Brothers)

Appendix 8 Annual Report of HPI as at December 31, 1994

	Actual 1994 Jan. - June	Actual 1994 July -Dec.	Proforma 1994
	(In thousands RMB)		
Income Statement Data			
Operating Revenue	2,032,485	2,183,210	4,215,695
Income before Financial Expenses	638,332	469,196	1,053,222
Net Income	433,376	443,527	830,420
Balance Sheet Data			
Total Assets	11,704,945	19,569,054	19,569,054
Current Liabilities	1,914,530	1,815,139	1,815,139
Long-Term Loans	4,555,522	6,946,832	6,946,832
Shareholders' Equity	5,234,893	10,807,083	10,807,083
Total Liabilities and Shareholders' Equity	11,704,945	19,569,054	19,569,054

(Source: Prospectus of Huaneng Power International, Inc. and Dow Jones)

Appendix 9 Estimated Cost (HPI Projects)

Estimated construction and related start-up costs (including interest during construction) for the planned power plants for the period 1994 to 1999

Power Plant/Expansion (in mn. RMB)	1994	1995	1996	1997	1998	1999
Dalian Phase II Expansion	---	757	1,388	1,508	721	194
Dandong Power Plant	135	689	1,357	1,579	773	207
Fuzhou Phase II Expansion	---	757	1,388	1,508	721	194
Jinling Power Plant	---	1,300	1,499	2,399	2,902	1,600
Nantong Phase II Expansion	---	757	1,388	1,508	721	194
Shangan Phase II Expansion	364	628	769	454	14	---
Shantou Coal-fired Plant	1,450	1,212	799	140	---	---
Shantou Phase II Expansion	---	---	---	---	198	1,380
Total	1,949	6,100	8,587	9,096	6,050	3,769

Appendix 10 Liabilities & Shareholders Equity (HPI)

As at June 30, 1994.

	Immediately prior to the organization (RMB)	Reconciliation items (RMB) (amount in thousands)	Immediately following the reorganization (RMB)
Liabilities:			
Current Liabilities:			
Current portion of long-term loans			
Foreign bank loans	734,512	(734,512) (a1)	---
Government loans	220,938	(220,938) (a1)	---
Current portion of long-term shareholders' loans	---	955,450 (a1)	955,450
Other current liabilities	959,080		959,080
Total Current Liabilities	1,914,530		1,914,530
Long-Term Loans:			
Foreign bank loans	3,541,258	(3,541,258) (a2)	---
Government loans	1,370,171	(434,625) (b)	---
		(935,546) (a2)	
Advance from HIPDC	78,718	(78,718) (a2)	---
Long-Term shareholders' loans	---	4,555,522 (a2)	4,555,522
Total Long-Term Loans	4,990,147		4,555,522
Total Liabilities	6,904,677		6,470,052
Shareholders' Equity:			
Class A ordinary shares		2,630,966 (c)	3,750,000
		434,625 (b)	
		684,409 (c)	
Additional paid-in capital		1,484,893 (c)	1,484,893
Owner's Equity	684,409	(684,409) (c)	---
Total Shareholders' Equity	684,409		5,234,893
Total Liabilities and Shareholders' Equity	7,589,086		11,704,945

Notes: (a1) and (a2) refer reclassification of the remaining outstanding loans from local governments, bank loans and central government loans on-lent by HIPDC into shareholders' loans: (b) is an adjustment reflecting the retirement of a portion of the local government loans in exchange for the Company's equity: (c) are the necessary reconciliations made to reflect the capitalization of the Company, including the elimination of the owner's equity account which existed prior to the formation of the Company as well as the recording of the issued share capital of RMB 3,750 million and the traditional paid-in capital.

BIBLIOGRAPHY

Books

Huaneng Power International, Inc. Prospectus. Lehman Brothers, Goldman, Sachs & Co., Morgan Stanley & Co., October, 13, 1994.

New World Development Company Limited Annual Report 1993

New World Development Company Limited Annual Report 1994

New World Development Company Limited Annual Report 1995

New World Development Company Limited Interim Report 1992/1993

New World Development Company Limited Interim Report 1994/1995

New World Development Company Limited Wardley Card, April 24, 1995.

Chance, Clifford. Project Finance. International Finance Review, 1991.

Credit Lyonnais Securities (Asia) Limited. New World Infrastructure Limited Placing and New Issue. October 17, 1995.

Elliot, Paul, Partner of Baker & McKenzie Hong Kong/China. Financing Structures For Infrastructure Financing in the People's Republic of China. March 29, 1996.

Freshfields Project Finance Group, Project Finance Third Edition, February 1995.

Nevitt, Peter K. Project Financing Fourth Edition. London, Great Britain: Euromoney Publications Limited, 1983.

Periodicals

"China: Deals Power On." Project Finance International (October 21, 1995), p. 52.

"China Energy Stock Listed on Big Board." The New York Times, The Associated Press, October 7, 1994, p. 6.

"China: Water BOT Deal Launched." Project Finance International (November 22, 1995), p. 10-11.

"Huaneng Power International, Inc." Lehman Brothers' Report, November 21, 1995.

"Huaneng Power International, Inc." Moody's Global Company Data Report, 1995, Moody's Investors Service, Inc., p. 2.

"Market Brief: New World Infrastructure Ltd." The Asian Wall Street Journal (October 24, 1995), p. 24.

"Power." Business China, Power Supplement, Spring 1995, The Economist Intelligence Unit, p. 4.

"Waiting for Beijing." Project & Trade Finance, February 1995, p. 26.

Chow, Lotte. "In Hong Kong: New World Infrastructure IPO Gets Good Response." The Asian Wall Street Journal (October 18, 1995), p. 13.

Clifford, Mark L. "New World's Road to China." Business Week (November 20, 1995), p. 76-81.

Guyot, Erik. "Lehman Shuffles Its Management in Europe, Asia; Replaces Carbone." The Wall Street Journal Europe, January 18, 1995, p. 9.

Guyot, Erik. "Mainland Power Shares - Don't Electrify Analysts." The Asian Wall Street Journal, September 19, 1994, p. 1.

Kalathil, Shanthi. "Hong Kong Week." The Asian Wall Street Journal, April 9, 1996, p. 1.

Lai, Renee. "Beijing Cap on Coal Price Eases Pressure on Power Companies." South China Morning Post, April 4, 1996, p. 3.

Lai, Renee. "Huaneng Power Expects 11pc Return From Assets." South China Morning Post, January 13, 1995.

Lai, Renee. "Huaneng Wins Tariff Rise." South China Morning Post, March 12, 1995, p. 1.

Lucas, Louise; Price Christopher. "Shanghai Water Plant Gets Limited Recourse Funding." Financial Times (October 13, 1995).

McNair, Damian; Rushton, Chris of Allen & Overy. "Project Finance in South East Asia and China." Petroleum Economist (February 1994), Special Report Pages 1-7.

Sauvage, Joseph G.; Sheen, Ray. "Pooled Project Finance Financings." The Journal of Project Finance, Spring 1995, p. 7.

Sender, Henry. "Hong Kong: Cold Feet." Far Eastern Economic Review, December 15, 1994, p. 68.

Webb, Sara. "Huaneng Power Takes a Hit From Its Own Underwriter." The Wall Street Journal Europe, November 8, 1995, p. 22.

News Wires

"Asian IPO Watch: Hong Kong's New World Infrastructure." Dow Jones International News (October 2, 1995): 01:28.

"China Toll Road of New World Infrastructure To Cost 225.8M Yuan More Than Earlier Forecast - Official." Dow Jones International News (February 8, 1996): 03:51.

"Hong Kong's New World Infrastructure Considers US$300 Million In Debt." Capital Markets Report (September 29, 1995): 01:21.

"Hong Kong's New World Infrastructure Debt: Earnings Snapshot." Dow Jones International News (September 29, 1995): 01:33.

"Hong Kong's New World Infrastructure Debt: Lower Than Market." Capital Markets Report (September 29, 1995): 01:29.

"Hong Kong's New World Infrastructure: Final Terms Later." Dow Jones International News (October 4, 1995): 07:23.

"Hong Kong's New World Infrastructure: Priced At 82.5% Of Assets." Dow Jones International News (October 4, 1995): 07:08.

"Hong Kong's New World Infrastructure Priced Between HK$11.00-$12.75." Dow Jones International News (October 16, 1995): 08:51.

"Hong Kong's New World Infrastructure Seeks HK$2.38 Billion In IPO." Dow Jones International News (October 17, 1995): 06:22.

"Hong Kong's New World Infrastructure: Sees 21% Income Gain." Dow Jones International News (October 17, 1995): 07:36.

"Hong Kong's New World Infrastructure: Snapshot." Dow Jones International News (October 5, 1995): 07:28.

"Hong Kong's New World Infrastructure: Success Seen For Offer." Dow Jones International News (October 4, 1995): 07:25.

"Hopewell Up 5 Cents To HK$5.15; Bucks Market Downtrend; Analysts Cite Switching From New World Infrastructure." Dow Jones International News (October 23, 1995): 03:03.

"New World Infrastructure Active On Debut; Up A Slightly Disappointing 20 HK Cents To HK$12.95 - Brokers." Dow Jones International News (October 26, 1995): 23:00.

"New World Infrastructure Debut: IPO Slowdown Seen." Dow Jones International News." Dow Jones International News (October 27, 1995): 06:43.

"New World Infrastructure Fairly Valued - J.P. Morgan." Dow Jones International News (December 13, 1995): 02:01.

"New World Infrastructure Debut: Bucks Market Downtrend." Dow Jones International News (October 27, 1995): 05:47.

"New World Infrastructure Debut: Little Speculation." Dow Jones International News (October 27, 1995): 06:14.

"New World Infrastructure IPO Receives Good Response." Dow Jones International News (October 23, 1995): 00:09.

"New World Infrastructure Offers 15.7 Million More Shares." Dow Jones International News (November 13, 1995): 06:21.

"New World Infrastructure Offers Slightly More Shares." Dow Jones International News (October 24, 1995): 21:45.

"New World Infrastructure: Over-allotment Coverage." Dow Jones International News (October 24, 1995): 21:46.

"New World Infrastructure's IPO 19.6 Times Subscribed." Dow Jones International News (October 23, 1995): 23:41.

"New World Infrastructure: Some Shares Cost HK$13 Each." Dow Jones International News." Dow Jones International News (October 26, 1995): 23:33.

"New World Infrastructure: Trading Starts October 27." Dow Jones International News (October 23, 1995): 00:42.

"New World Infrastructure: Traffic Flow Key." Dow Jones International News (February 8, 1996): 06:14.

"New World Infrastructure: Views Differ On Stock Price." Dow Jones International News (October 27, 1995): 00:01.

"Traders Are Mixed On New World Infrastructure's Debut." Dow Jones International News (October 27, 1995): 05:01.

Chan, Biddy. "New World Infrastructure To Expand Road." Dow Jones International News (February 8, 1996): 04:26.

Chow, Lotte. "China's New World Infrastructure Draws Investors." Emerging Markets Report (October 17, 1995): 20:50.

Interview

Delcourt, Hughes. Banque Indosuez, Hong Kong. Interview, March 29, 1996.

Gold, Barry. Lehman Brothers, Hong Kong. Interview, March 1, 1996.

Liu, Er Fei. Smith Barney, Hong Kong. Interview, April 30, 1996.

Arnail, Xavier. Banque Indosuez, Hong Kong. Interview, Feb. 15, 1996.